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Editorial

The Journal of the Royal Naval Medical Service is facing a financial crisis. The number of contributors is decreasing, the advertising revenue has fallen very poor since the inception of Combined Services Publications a few years ago and the cost of printing and postage have increased.

The number run of the RN Medical Service were Defence Civil Study (I) was discontinued has reduced the number of potential contributors and, not surprisingly, medical officers on leaving prefer to publish in peer-reviewed journals which lend more responsibility to a correction error in the paper for a Cabinet minister of appointment as a consultant.

As editor I have had quite a few despairing remarks about the journal not being what it used to be.

The journal is not subsidised by the Royal Navy apart from the design cover editing during sailing hours.

There are a few possible solutions to the problems faced by this journal.

- Increase the cost of the journal to individual subscribers.
- Cut the number of volumes from three to two a year.
- Halt till the printed at the end of this volume.
- Amalgamate with another journal.
- Be subsidised by the Ministry of Defence (Navy).

The last time this journal existed its price to individual subscribers its circulation dropped dramatically, it cannot afford for that to happen again. Fortunately equipped with a small journal fleet, even that with a subsidy. The Ministry of Defence (Navy) is already looking for measures to save money as well as savings over the STP last four financial years and appear very seriously to change up any costs.

I would welcome your views:

- Should we call it a day after the three volumes of this volume?
- Are you prepared to pay £10 a year for three volumes?
- Are you prepared to pay £12 a year for two volumes?
- Have you any other bright ideas?

Nick Babinch.

Postscript - I apologise for this very late journal! I have been away for a month.

A Word From The Medical Director General (Naval)

As I write this article medical staff are beginning to return from OP TELIC: the UK's contribution to Operations in the Gulf. It was a privilege to share the capacity of the Primary Casualty Base (a Primary medical team from RFA A&B2/S on their return immediately before Sister Gillian Blymer had arrived with J Commsale Brigade and the newly returned Commsale Field Support Group (CPSG). Both J1 Field Support and J4 had RN medical staff deployed: the latter had sent 30 Medical Support Associates from the RMA amongst their numbers.

Formerly civilians were left from one way side but there were significant numbers of Trainees and civilians who required in port medical treatment. This kept medical staff busy and tested the system to the full. I am delighted and surprised to report that all Medical personnel performed exceptionally well. The Primary Casualty Recovery Ship proved its worth and I am optimistic about procuring a replacement by 2007. The CPFGs were in the vanguard of the return with two years supporting 40 Commsale and two attached to 40 Commsale. They demonstrated their ability to come to light and remain capable of receiving and treating casualties.

The Medical Services are unique amongst the military in that we are training and getting training in Medical Centres and M&AUs. These persons both service and civilian give from our experts and the hope is that they will return to duty. However, our priorities must be to prepare us for the war role. Periodically the House requires its young men and women to be put in harm's way: to enforce Government policy. The medical services deploy so that any injured personnel are given the best possible treatment in the shortest time with the best medical equipment and highest trained medical personnel.

It has not always been easy to achieve the best possible with scarce resources and limited numbers. Fortunately much good work has gone on over the last three years to prepare RFA A&B2/S and the Field Support teams. Even so more deployed first medical equipment was being procured in Operations Requirements (ORNs). It is a great achievement all those that deployed that they made it work and returned in such an orderly and a state as A&B2/S was hard to say that it's not well known when the emergency stopped and the medical teams came out.

The RMA's has been severely tested in 2001 and not found wanting.

R R Case Q&A? Support Base Admiral

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Clinical

A Complicated Stress Fracture Of The Femoral Neck – A Case Report

G Selvar, R A Ross, T J W Spalding

Key Words: Stress fracture, femoral neck, stress fracture complication, osteone osteomy

Abstract

A case is presented of a stress fracture of the femoral neck complicated by complete fracture-adductor complex tears, some, when the repaired fracture went on to the femur due to healing of the DHS screw requiring revision surgery with a major osteotomy. The case is important because the type of stress fracture has previously been considered to be safe from risk of complete fracture. The failure of the operative treatment has implications for young patients treated similarly.

Case summary

A 18 year old Royal Marine recruit presented to the Medical Centre having completed 13 weeks of a 38 week training programme. He gave a 3 week history of right posterior knee pain that had become progressively worse with continued training. The pain was exacerbated by a frontal speed work at home, varying 1-4kg of squats. Following this he also developed some night leg pain. The leg pain settled with rest but the posterior knee pain persisted. He had some pain when unloaded at rest but no nocturnal pain.

Initial examination revealed no specific abnormalities other than leg tenderness. The right knee was normal. X rays of the leg and knee were reported as normal.

The patient was removed from training and treated with physiotherapy and general weight bearing on crutches. The physiotherapy used

underpins over the femur into a low lateral epicondyle and over the lateral head of gastrocnemius and started him with massage followed by Maitland mobilisation stretches and pedal chair work cautiously.

The stress fracture healed almost fully and later than the leg pain had resolved but the knee pain persisted. Examination findings at that time were suggestive of the tibial head syndrome and possible pre-injury tendinitis. Examination of the leg appeared normal. In view of the possibility of a stress fracture of the leg a triple phase bone scan (TPBS) was ordered.

The TPBS showed an area of slightly increased activity in the region of the right leg on the tibial head images. Late phase imaging showed a characteristically enhanced area of uptake in the femoral neck, consistent with a stress related phenomenon.



Figure 1. Anteroposterior (AP) view of femur

Unfortunately the patient presented in knee before the TPBS result was received. A large cluster in, with the history in Figure 1 and

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Figure 1 Patient's right hand

degree, about to the contrary, went climbing. On completion of a climb he slipped out of the harness and experienced severe pain in the right leg. He was unable to weight bear and was taken to the local hospital where a computer fracture of the right femoral shaft distal cervical (Figure 1) was diagnosed. This was managed operatively with a dynamic hip screw and a two hole plate (Figure 2).

On his return to the UK he was followed up in Coventry and experienced gradual weight bearing on crutches. His appetite was still poor, probably as an result he had good weight and patient ranges of movement but the fracture line was still visible on X-ray. At three months the fracture call had not formed but the patient was symptom free. Follow up at six months revealed that the fracture had progressed to a non union with healing of the DHS wires (Figure 3). Bone density of the femoral head on the plain radiograph appeared normal indicating no avascular necrosis of the femoral head.

The non union was treated by a Lateral ridge osteotomy after removal of the DHS plate, and using a DHS block plate was inserted into the Lateral shaft, perpendicular to the long axis of the bone. The osteotomy was made at the level of the lesser trochanter and the blade part of the fixation device was then brought parallel to the bone. This increased the shaft lateral neck



Figure 2 View on the anterior aspect of the distal DHS screw

angle by DHS plate, and made the bone union to meet fracture for increased compression. Microfractured bone graft from the remaining leg was packed around the new plate but a substantial graft was required.

Incidentally the original DHS wires, as found to be broken as they were not able to show any further down the tube part of the DHS fixation (Figure 4 and 5). Postoperatively, the patient sustained much weight bearing for 1 month. He recovered well and at three months both the osteotomy site and the fracture appeared united (Figure 6). After 12 months he has had no further problems and has returned to work upon participation.



Figure 3 Dist DHS wires



Figure 1. Patient with a right anterior and medial hip pain during exercise.

Discussion

Stress fractures occur either by repetitive submaximal loading or normal bone, or by minimal loading or abnormally weak bone. Stress fractures of the femoral neck occur in two distinct groups, young patients (e.g. military recruits) and athletes or older osteoporotic patients. Metabolic disorders including osteoporosis and osteopenia are consistent in these fractures as are trauma, hormonal abnormalities such as endometriosis. Stress fractures of the hip have previously been reported in the Commando Training Centre, Royal Marines (CTCRM), and elsewhere. At CTCRM hip stress fractures account for 4% of total stress fractures. The vast majority of cases heal rapidly and spontaneously without complications given adequate rest.

Stress fractures resulting in complete loss have been reported to affect the mechanical strength when femoral shaft and femoral neck. At CTCRM femoral neck cases have presented after 4 to 16 h of daily walks of ordinary training with sudden catastrophic failure during the activities, impact of running without equipment.

In most cases however, patients return with minimal loss of bone, fracture present prior to complete fracture with symptoms and signs similar to the case presented. Pain is usually ill defined, increases on and poorly localized. Often there are no significant physical findings. Examination of the hip joint can reproduce the pain but there is no radiable sign (Pain X-ray, no osteolysis or the diagnosis and often only these signs, also many words. A triple phase

bone scan (TPBS) is suggested as the most sensitive diagnostic test.

In this case the plain radiograph was normal and the patient had no radiable evidence of osteolysis, hence the name. The TPBS showed defects consistent of a stress fracture with an area of pain and range of motion in the anterior part of the femoral neck. This aspect of the femoral neck is under compressive stress when loaded and is less previously been reported that stress fractures in the femoral neck are risk of osteolysis, complete osteoporosis lesions. By careful fracture of the superior aspect of the femoral neck an under tension and therefore more likely to go on to completion. It has been suggested that this type of stress fracture should be considered for early closure, however whereas this has been claimed not to result in compressive fracture? This patient was specifically advised not to go climbing and the taking of six weeks' rest fully resolved it at the remodelling phase of the fracture, thus reducing the risk of a complete fracture.

Blackwell and Moore, in the 1980s had osteolysis, osteopenia, with femoral neck fractures as military recruits and listed the following characteristics:

- Type I: Isolated distal femoral, 4-5 cm, without a fracture, 4-6 cm, 10%.
- Type II: A definite fracture line without displacement.
- Type III: A displaced stress fracture.

This reported a high incidence of complications associated with Type III fractures including non union and malunion. One of our cases only had healed without complications. The use of elective bone grafting, and internal fixation was recommended in the treatment of this type of fracture.

In this case there is no record of bone grafting being used or metal surgery. The 1989 literature is in good position and should have provided enough fracture stability to prevent bone healing. However, high bone density and volume, osteoporosis in the femoral neck probably contributed to the non union. Both of these conditions associated with this type of fracture and recommended open wire mesh of management of anything bone graft and compressive fracture. Other cases of failure of oblique screw implants have also been described. In this case it appears

this excessive loading of the joints resulted in bending of the L5/S1 vertebra thus preventing it from sitting upon the apex of the plate and thereby probably contributing to the non union of the fracture. The best movement option therefore was to increase the support and reduce the shearing forces of the fracture by changing the angle with a slight extension.

This case demonstrates clearly the compressive stress fracture of the femoral neck can present as a displaced fracture. This case also emphasizes the importance of testing type 10 units frequently negatively with foot gaiting on the original operative fixation followed by a prolonged period of reduced mobilization and prolonged weight bearing.

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History

A Note On William Job Maillard: Marking The 100th Anniversary Of His Death

Jane Wickenden

Surgeon William Job Maillard M.D. VC R.N. was born at Bursard in Somerset on the 16th March 1865, son of the Rev. David Gifford Maillard, a Methodist minister, and his wife Winifred Elizabeth nee Davies. Maillard was educated at King'swood School, Bath and at Durham College, a Victorian public school at Lanchester. He qualifying M.D. (with Gold Medal in Medicine) at Guy's Hospital in 1890, when he had already been appointed Surgeon to HMS Dart of Willesden. He became the first naval medical officer to achieve M.D. while serving.

After serving in HMS Ganges and HMS Iron Duke Maillard was appointed to HMS Abdiel flagship of the West Indies station in the appointment he met his wife Maria Sarah Bennett, a trained nursing sister, they were married in 1895 in the British Consulate (now Belize). The years from 1896 saw appointments to HMS Albatross, Foreigner, Duke (again), Pembroke, Oryx and Erebus and Maillard gained on 18 August 1897 the posthumous RDS Award, pending the Mediterranean station near Crete.

At that time Crete was an international province with a mixed Muslim and Christian population, having been ruled by Turkey until earlier that year, the island was not ruled by Cyprus until 1913. In 1898 a dispute arose the conflicting in the region. Greek Cretes known as *hellenes* or *hellens* combined into a full scale anti-*chrysoi* uprising. Crete was in the British zone and Colonel Ross commanding a small detachment of the Highland Light Infantry was in a position to deal the issue and quickly the award.

A correspondence to the Times, writing from HMS Dart, picks up the story of the events of January till September 1898.

The whole of the island was the theatre

opened fire on it. Cyprus troops and English joined. Every window held one or more rifles and the fire is described as something appalling. The patrol immediately got into the Cretan houses and started to enter the fire, that Maillard soon began writing word for word in 74 lines and to a officer's statement there, as at least 30 were and was killed (dead) there, as wounded in the neighbourhood of the Cretan houses. The whole story seems to have more in the last than

it is believed that 900 of the soldiers of Cretans have been massacred. The island's main harbour, especially, and I hope they get something out of it. Their doctor should get the V.C. His duties were clear enough on at least a dozen places where he was helping the wounded and he, escaped unscathed without a scratch.

Maillard, who had specially reported to be sent ashore, had disembarked from the Dart's boat and rushed in place of help. However he went back through a hail of bullets in an attempt to rescue Ordinary British Archer Maillard, who was wounded and had fallen back, into the line. Second was however Maillard died and is responsible for Maillard's life here, as the boat was sinking. He returned to the post where his duties were carried out with honour.

Letters home from Maillard are rather deficient about the action - on September 14th he wrote

"This is the chance of my really getting the Victoria Cross" but his VC was granted on 2nd December. He, therefore, became the first and so far the only officer of the Royal Naval Medical Service to be awarded the VC, and was presented with the medal by Queen Victoria at Windsor three days after the award was granted.

In 1899 Maillard was promoted to Lieut. Surgeon. The distinguished service - and was on the staff of the R.N.M.S. depot ship HMS Dart at Malta between 21 November 1899 and 29 January 1900 after which he was appointed to HMS Archer on the Australian station. From April to July 1901 he was at Highbury as well 1898 Duke of Wellington. On 17th July

Jane Wickenden MA, Medical Collections (John is a the former of Royal Medical)

Research

Survival of the Fittest? The Scientific Basis for the Royal Navy Pre-Joining Fitness Test

A J Allsopp¹, E G Scarpello², S Andrews¹, and R J Pethybridge

Key words: Physical fitness, aerobic power, injury, military training, body mass index

Abstract

The Royal Navy introduced a pre-joining fitness test in the voluntary provisions for RN Ratings from January 2001. The rationale, based on the test name from the present study to investigate if anthropometric and physical fitness measures predicted training failure. Physical and anthropometric data from 1441 recruits were collected together with short training modules for just in fully during the period from September 2000 to March 2002. In addition, a questionnaire survey-based method records about test those who reported any lower limb injuries.

The overall test of joining success was 21% Success in training was correlated with greater age, physical fitness and to the size of females. Body Mass Index (BMI) The reported incidence of lower limb injury (LLI) was measured with greater physical fitness, and the female recruits (RM). The reported incidence of LLI was approximately 50% in the first female group compared to 10% in the rest of the male group. 14% of females and 2% of males were considered unfit to do did not return the prescribed run standards of 10min 15s and 13min 15s respectively. 2% of females were considered obese (≥ 30 kg/m²) whereas more than 23% were overweight ($25 < \text{BMI} < 30$ kg/m²).

As a result of this work, various conclusions must also demonstrate a minimum standard of aerobic fitness prior to entry to HMS Raleigh. The fitness aspect of the selection process on the reported incidence of lower limb injury and improved rates of training success further re-examination.

Introduction

Aerobic fitness is a essential component for physical fitness, being more than a few metres, whereas muscular strength and to make, endurance as important physical fitness parameters for high intensity short duration tasks. Aerobic fitness and effective task performance these parameters are also important if musculoskeletal injury is to be avoided. It has been shown the physically weaker employees have a higher risk of on the job injury than stronger workers³ and individuals who do not matched with the personal requirements of their job with higher rates of injury than those who are matched⁴. Furthermore, the risk of musculoskeletal injury increases significantly when employees are forced to work above 75% of their maximum work capacity⁵. Thus, the muscular endurance of recruits is also of interest as is their reported incidence of musculoskeletal injury.

Anthropometric measures, such as height, have shown to be strong predictors of the functional capacity of RM personnel⁶. While the basic measures of height and weight provide some indication of the physical condition of personnel they do not distinguish between body fat or muscle and body mass. Thus, factors are important when attempting to draw inferences between those personnel who are most likely to be able to perform demanding occupational tasks and successfully complete a physical training programme, and those who are not.

At the Royal Navy's new training establishment HMS Raleigh approximately 23% of the females who started training in 2000 failed to complete the course. Clearly a higher success rate would be beneficial for the Navy and more desirable economically. The identification of individual criteria which predict training success, or failure is failure is an important step in attempting to improve personnel selection reduce injury rates and decrease training attrition or wastage.

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and physiological measurements have been shown to be valid (9). It is a capacity and the risk of injury was incorporated into such measures, not predictors, of training outcome. Therefore the aim of this present study was to identify those physical traits and anthropometric characteristics that have a strong relationship with training outcome in order to identify appropriate selection strategies.

Methods

Subjects. VOLUNTARILY RECRUITED LITHELY H&H Raleigh were operational Subjects were both male and female, aged between 18–31. All gave their informed written consent to take part in the study which was approved by the Ministry of Defence (MoD) Personnel Research Ethics Committee.

Study period. The study was conducted from September 2000 to March 2001 during which time New Faces Class numbers varied from Nine 100. A total of 1207 males and 561 females consented to take part in the study. One for each individual was collected at the start and at intervals during the eight week training course.

Anthropometry measurements. Subjects personal details were recorded. These included: current weight, date of birth, sex, service number, stress number, class start date and selected branch. Anthropometric measurements were conducted at H&H Raleigh (airway Subjects, height and body mass were measured and Body Mass Index (BMI) calculated ($\text{mass (kg)} / \text{height (m)}^2$). Percentage body fat was measured by four point bio electrical impedance (bioelectrical impedance analysis, BIA) of hand as the method is commonly used by the RM Physical Training branch. The accuracy of this method is compromised by factors that impede current flow (body fluids, metal implants). For this reason subjects were asked to refrain from those items adequately hydrated before standing and requested to empty their bladder prior to measurement. Body fat was measured only on subjects entering Raleigh from September 2000 to the end of 2001.

Army Collection Training. Trainees used 3.4 km run performance was assessed by the Physical Training (PT) instructors in weeks one, three, five and eight. Performance times were recorded on meters and seconds. As part of the physical training syllabus, PT staff assessed the progressive endurance of trainees in weeks four and seven. Trainees were instructed to perform six ups and

seven ups in response to an auditory signal at a frequency of 30 per minute to a maximum of thirty. Tenade tracers performed nine ups with their lower body supported by their arms, rather than their feet and the others were lowered to approximately three feet from the floor (examined by the width of an observer's feet). Fall on ups with the trainees' officers, knowing that their knees were performed. The number of sit ups and press ups successfully completed were recorded. The outcome of training was also measured and interpreted as one of the following: Pass (Minimum Voluntary Release (PVR), Developed Unacceptable During Training (DUT), or 35 Day Kilo Exchange due to medical complications). Following approval from the Medical Director General (MDG), data regarding casualties of lower limb injury were recorded at the end of the subjects. Part I training from medical records sourced on the Royal Medical Information System (RMIS) (financial weeks). Descriptive analyses were conducted with tests of association (Chi squared or Chi squared for linear trends as appropriate). Within subject changes over time were analysed by analysis of variance techniques where the data were normally distributed or by the sign test for data not normally distributed.

Results

The physical characteristics of the subjects are shown in Table 1.

Training retention. The overall pass rates were 71% for females (268 of 374) and 79% for males (1102 of 1387), giving an overall pass overall of approximately 75%. Analysis also indicated that a significantly ($P < 0.05$) higher likelihood of successfully passing the training course for men than for women. The reasons for failure to pass the training course are given in Table 2. The highest proportion of failures was attributed to Minimum Voluntary Release (PVR) i.e. subjects who opt out of training.

The age of the 1041 trainees ranged from 16 to 31 years, 40% of the sample were under 18 years, 29% aged 18 to 19 years, 15% aged 20 to 21 years and 16% older than 21 years. Analysis indicated a significant relationship ($P < 0.001$) between age and success in training, with those oldest trainees being more likely to pass.

Body mass index and percentage body fat. For Quantiles of BMI for females and males are given in Table 3. For the female trainees, the failure rate was highest in the highest quartile group (i.e. BMI in excess of 25 kg m⁻²).

Table 1. Mean (range) age, length, mass and body mass index of male and female subjects

	Females (n = 184)		Males (n = 1267)	
Age (yr)	11	(8 - 12)	18	(18 - 32)
Height (cm)	165	(152 - 181)	173	(157 - 204)
Mass (kg)	61	(46 - 81)	74	(45 - 113)
Body Mass Index (kg m ⁻²)	24	(18 - 31)	25	(18 - 34)

Table 2. Comparisons of compliance/compliance of Part 1 training

	Females		Males	
	Frequency	Percent	Frequency	Percent
Yes	76	13.6	363	28.6
Frequency Voluntary Refused	58	11.0	178	13.2
Recharged Unwilling During Training	15	2.4	5	2.8
Not by Male	15	2.4	5	2.8
Wish to Continue	7	1.0	3	0.2
No Entry (not completing Part 1, injured)	8	0.6	2	0.1
Total	169	100.0	1267	100.0

Table 3. Quartile groups of BMI calculated against the percentage fat and protein for the female and male subjects

Quartile group	Females (n=184)			Males (n=1267)		
	BMI (kg m ⁻²)	Fat (%)	Protein (%)	BMI (kg m ⁻²)	Fat (%)	Protein (%)
1	< 21.36	28	15	< 20.77	24	16
2	21.36 - 25.41	18	17	20.77 - 22.71	28	20
3	25.42 - 29.56	14	16	22.72 - 25.12	19	14
4	> 29.56	10	14	> 25.12	22	16

Table 4. Quartile groups of percentage fat values of against the percentage fat and protein for the female and male subjects

Quartile group	Females (n=184)			Males (n=1267)		
	Body fat (%)	Fat (%)	Protein (%)	Body fat (%)	Fat (%)	Protein (%)
1	< 7.38	20	15	< 8.69	20	16
2	7.39 - 14.68	16	14	8.69 - 11.75	20	16
3	14.69 - 20.35	15	15	11.76 - 14.82	19	14
4	> 20.35	15	14	> 14.82	16	15

The relationship between BMI and training outcome in female trainees was significant ($P=0.002$); i.e. female trainees with a high BMI were more likely to fail training. Of the 12 female recruits who had a BMI in excess of 30 kg m^{-2} were failed (83%). For comparison of the 36 males with a BMI over 30 kg m^{-2} eleven (31%) failed the course. There was no association between BMI and training outcome for the male trainees.

Percentage body fat was measured during one opportunity in 200 female and 74 male trainees. The mean (range) percentage body fat values were 25.2% (0.5%–39.9%) and 12.2% (1.1%–30.3%) for females and males respectively. The relationship between quartile groups and parallel *ex-ante* status is table 4. It was preliminary analysis revealed a similar relationship to that of BMI with a higher proportion of females in the higher percentage body fat category. Percentage body fat measures were discontinued on the second week of the study.

Run-time. Times for the 2 day runs were out of training are shown in Figures 1a and 1b. For the 200 women (i.e. there were no data for 49 women) the mean (range) time was 14min 17s (13min 40s to 15min 50s). Figure 1a shows there is no data for 48 more the mean was 13min 40s (range 13min 14s to 13min 47s). In week eight there were a small group of 12 men (10min 16s to 13min 44s) for the 257 women. Similarly, a mean (range) of 13min 40s (13min 04s to 14min 34s) for the 257 men (Figure 1a part 2b). Further examination of the week one data

Figure 1a Run time in Week 1 of training males ($n=125$)



indicated a poor outcome for males who took at least 14min to complete their 2 day run with only 11 of the 26 women in this category passing on (42%). Similarly, for the 36 females who completed the 2 day run in 14min the only 20 passed (56%) and for 49 women who took 17 min the only seven passed (14%). It is therefore apparent that a large proportion of the slower runners dropped out of training.

Estimated aerobic power. To maintain the effectiveness of aerobic power during the latter of training, subjects who completed the 2 day run on all four occasions were examined (250

Figure 1b Run time in Week 1 of training females ($n=182$)



Figure 1c Run time in Week 2 of training females ($n=155$)



Figure 2b. Run time at Week 5 of training under (n=827).



women and 790 men). Aerobic power ($\dot{V}O_2$) was estimated using the regression equation of Coopers. For the women analysis of variance indicated an improvement ($P<0.05$) from week one to week three, whereas for the men this improvement continued to week five. The average values are shown in Figure 3.

Many subjects had missing data for one or more test measures, presumably through injury. To maximize the available data, the Coopers run time from any of the four tests was used. This yielded 134 women and 1145 men with respective mean standard deviation of 34.9 (± 7) $\text{ml} \cdot \text{min}^{-1} \cdot \text{kg}^{-1}$ and 33.4 (± 5) $\text{ml} \cdot \text{min}^{-1} \cdot \text{kg}^{-1}$. The distribution quartile ranges of men within each of these populations are presented in Table 3 together with the percentage of training, injury and falls within each quartile. There was no association ($P>0.01$) between fitness and running outcome in males, and females with the first 34 runners were less likely to succeed.

Figure 3. Estimated mean (\pm s.d.) standard error of the mean $\dot{V}O_{2\max}$ and $\dot{V}O_{2\max} \cdot \text{kg}^{-1}$ for females and males during the course of training.

Of the 1568 females who passed Post 1 training successfully, 66% had a mean improvement of 2.4 $\text{ml} \cdot \text{min}^{-1} \cdot \text{kg}^{-1}$ at any point of training) of less than 34 $\text{ml} \cdot \text{min}^{-1} \cdot \text{kg}^{-1}$ (the present standard for women under aged 25). Similarly, 2% of the 8034 males did not achieve 34 $\text{ml} \cdot \text{min}^{-1} \cdot \text{kg}^{-1}$, the respective equivalent standard for men under 25 years.

Pre- and post-ages. Two hundred and thirty-two women and 941 men underwent pre- and post-ages, in weeks, four and seven. The number of post-ages that could be performed in the test was a maximum of 40, and therefore the data were not normally distributed. For both the women and the men, the median and 75th percentile values increased ($P<0.01$) - from 29 and 36 pre-ages, to 36 and 40 post-ages respectively in week seven. Post-ages at week seven were associated with success at training ($P<0.05$).

Injury. Of the 104 females and 1237 men on days

Table 3. Outcome of training (post-ages) for quartile groups of estimated $\dot{V}O_{2\max}$ for female and male runners.

Quartile	Females (n=1568)			Males (n=8034)		
	$\dot{V}O_{2\max}$ (ml/min/kg)	Post (%)	Post (%)	$\dot{V}O_{2\max}$ (ml/min/kg)	Post (%)	Post (%)
1	<27.00	65	17	<30.00	76	42
2	27.00 - 32.75	19	66	30.00 - 34.99	19	61
3	34.75 - 41.00	7	64	35.00 - 42.99	15	35
4	>42.75	6	64	>43.00	6	90

Table 6 The frequency and percentage of cases of lower limb injuries by category for female and male inmates

	Females (n=544)		Males (n=5287)		Total (n=5831)	
	n	%	n	%	n	%
All lower limb injury	128	24	244	47	372	23
Knee	48	9	112	21	160	10
Foot	23	4	30	6	53	4
Lower limb	26	5	34	7	60	4
Below knee	34	6	34	7	68	4
Other	6	1	13	3	19	1

Footnote: If a subject had any lower limb injury and no other lower limb injuries were recorded for that entry in the database only injuries

study 100 sustained a lower limb injury (21%) of which the most common anatomical site was the knee (Table 6). Compared to men, women reported a significantly higher (F=0.05) proportion of all types of lower limb injuries except those categorized as 'other'.

When the 'any injury' data were re-examined with respect to prison power (prisoner rank), a trend (F=0.07) between inmates and injury was identified for both sexes (Table 7). This trend indicated that individuals who were first to be compared to their colleagues incurred a higher proportion of injuries. A cluster trend was identified for the female quartile of 544 with higher 544 being incarcerated (Post 23) with injury. In addition, prison up scores in work were were associated with reported lower limb injury (F=0.06).

Discussion

While previous studies have reported an association between past physical fitness and

higher rates of injury, this is the first time that this link has been demonstrated in BN inmates. The data in Table 7 indicate that the best fit women have a one in two chance of sustaining a lower limb injury, whereas this is reduced to one in four for the lower women. In comparison, the highest rate of recorded injury for male inmates was one in four for the low to high rank, and one in 10 for the high fit. In addition, this study has also demonstrated that those inmates who were less fit had a lower chance of passing Post One training.

The weaker associations for ankle, finger (compared from rest, time) and upper limb anterior endurance (prison up ability) with lower limb injury suggests that more general physical ability determines the likelihood of injury. This is in agreement with previous studies that have indicated that past physical fitness, both cardiovascular and musculoskeletal^{11,12} and a low level of prior physical activity¹³ lead to greater risk of injury. It is probable that

Table 7 Post maps of injuries for female and male inmates broken down into quartile groups for overall prison (MQ) rank

rank	Females (n=544)		Males (n=5287)	
	Injured (%)	Uninjured (%)	Injured (%)	Uninjured (%)
1	48	57	70	73
2	50	48	14	44
3	54	76	14	81
4	29	70	18	92

generally, is individuals are less likely to be working externally during pump activities and so become less fatigued and recover faster compared to those less fit peers. Consequently, their systems are less likely to become fatigued or over-worked and so less likely to sustain an injury. Furthermore, less fit individuals are likely to be less capable, therefore work upon and physical exertion related to much difficult following exercise and perhaps more likely to report painful symptoms.

The association between physical fitness and training context is interesting given the need for reasons to meet the physical requirements of the course. The frequency distributions in Figures 1 and 2 and the high proportion of failures at the lowest quartile indicate the work of these boxes, particularly in the female weight. However, these boxes have training are infrequently recorded as PFR or DDT markers, suggesting that either an additional reason exist in the non-completion of training. The extent to which physical fitness is a factor in this non-completion needs to be considered. The high proportion of failures with a lower estimated max suggests that physical fitness is an important variable in the overall assessment of trainees. The large discrepancy in general outcome, as estimated data for female trainees within the first two weeks suggests that this was largely achieved through improved pacing. Thus, only two weeks are not a reflection of aerobic fitness but dependent on experience. A similar 10% improvement of aerobic fitness has been reported elsewhere after eight complete weeks of training.

Given the apparent requirement for trainees to be physically fit and the association between poor fitness and training injury, the data from the present study suggest the use of a fitness assessment for potential RN candidates. Consequently, staff of the Director Naval Physical Training and Sports and the Director of Naval Recruitment have considered the findings of this present study in conjunction with the policies and strategies to reduce training stresses and improve physical fitness. Subsequently, Flag Officer Training and Recruitment has agreed to implement a pre-joining fitness test (PFT) with other fleet Selection 2015 candidates for 1 May. This test will be conducted at local sea bases administered by Armed Forces Career Offices (AFCOs) and will comprise a 7.4 km timed run performed on a treadmill. The maximum weights of aerobic fitness for men

(12mm 21s) and women (14mm 15s) are 10% lower than those specified for personnel aged under 25 in the Royal Navy Fitness Test.¹ The PFT standards require that running speed can be improved by the trainee during timed training and that all candidates are aged under 25 years. No allowance has been made for using a treadmill which should facilitate appropriate pace setting. Indeed, it is this practice that need to make concessions for weather conditions. Note also that no maximum strength standard has been set for the PFT. The two sets (20-25 and joint age) currently used have a poor consistency because of the context in which they are conducted (ie a maximum of 40 repetitions).

In addition to the PFT, the results from the present study suggest that Armed Forces Career Offices should work to improve the current method of selecting for overweight or obese personnel. These currently performed during the First Navy Medical, using tables produced by the Metropolitan Life Assurance Company in 1982 based on American mortality statistics.² The tables for males and females provide maximal values for average body mass and 10% of average body mass for each modulus and large breast tables at average height. The present study did not collect information on those not exceeding a large breast as women exceeded the 10% mass for height least exceeding a medium breast size for all individuals (the 9% of males and 13% of females exceeded this limit). In comparison, using the definition of overweight (>25 kg m⁻²) and obese (>30 kg m⁻²) agreed by the World Health Organization,³ 29% of males and 29% of females were overweight and 37% of males and females obese. These differences between the two methods of assessment suggest that future use needs to be defined or a less ambiguous method of determining overweight and obese individuals should be used. The BMI method was a useful predictor of training success for women in this study and is a completely separate measure.

The use of EMIS records to monitor the incidence of injury across a potential time since the EMIS category is required at reporting to the 'safety' post is dangerous. This table is generic could report injury or pain in an attempt to be measured physical event, as these cases are likely to occur on the EMIS system, even if they are eventually diagnosed as injury free. Conversely it is possible that records with a minor injury will not report to the 'safety' for

loss of being back placed as withdrawn from training. One out of 1000 recruits for military of injury due is clearly contaminated by the awareness of the current investigation study by medical staff, several cases of subconsciously return to g. patients examined at medical examination were found during the course of this study. However, it is still difficult to suggest that contamination of these errors would increase the numbers of injuries recorded and thus improve the statistical significance of these findings.

In summary, both the outcome of RM Post 1 Training at RMFS, Rolyg and the incidence of lower limb injuries reported by student were associated with one increased VCI risk and, as the case of female student RM4. A large proportion of injuries, apart from training or were deemed avoidable. The reason for which the lack of physical fitness was a factor in this case, completion of training is sufficient. However, the adoption of the pre joining fitness test is likely to significantly reduce the rate of reported injury and training interest.

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Research

Modelling The Effectiveness Of Techniques For Reducing Heat Strain In Royal Navy Nuclear, Biological And Chemical Cleansing Stations' Teams

J R House

Abstract

High temperatures combined with wearing nuclear biological chemical (NBC) individual protective equipment (IPE) pose a significant heat stress on personnel working in ships' NBC cleansing stations (CS) and limit the ability of ships to operate in a contaminated environment. This report reviews the potential solutions to this problem and concludes that only a method of actively cooling personnel will reduce heat stress and increase the number of people that can be protected through ships' NBC CS. Assessing the main stages of cooling equipment that might offer a benefit, only hand/wrist spray + cold water cool suit could not practically model for use in NBC CS. To assess how effective these techniques are likely to be, DPM has modelled the thermal effects using environmental conditions reported in the CS when operating in a hot climate. The model predicted that hand spraying or cold water (HWC) would be the most effective cooling method providing the personnel were able to take regular rest periods to minimise the loads. If it is preferred this personnel in the CS be able to work continuously then suit-cool would be effective. The suit-cool work time that can be achieved in a three hour period without a cooling intervention is approximately 72 minutes; regular rest periods must be taken throughout the three hour work period to total of 120 minutes. Suit work time can be increased to 90 minutes by using the suit vest and HWC sprayed by every third minute at 15°C water with required rest times reduced accordingly. Weekly recovery capacity of CS teams is determined personnel.

Introduction

When under threat of nuclear biological and chemical (NBC) contamination Royal Navy (RN) ships possess a number of important capabilities to reduce the risk of effects of extreme contamination. The group of potential capabilities is called the shield and during times the capacity of the ships capacity must be reduced in comparison with the shield. When the shield is missing, only the minimum effective level capable outside a so that the smallest number of personnel are in risk of becoming contaminated. Because of the risk, the personnel outside the shield are dressed in NBC individual Protective Equipment (IPE) such as the M4V NBC suit, H30 respirator, rubber gloves and rubber overboots. When the shield is operating and in NBC areas have contaminated the ship, personnel may or may the shield be destroyed since the loads. If the ship were contaminated with NBC agents then entry to the shield would be restricted to the ships cleansing station (CS) under command control people working there at least one CR. Personnel are decontaminated as they pass through the CS so that they do not introduce contamination onto the shield.

Personnel entering from the opportunist who may be contaminated with an NBC agent (normal duty) are decontaminated with the assistance of two washrooms, while they pass through the CS. When the shield is in operation the external patient flows are through the CR pump which draws them in to flow through the CS eventually exiting to the external environment. The patient that arrive through the CS is always externally clean, removing the risk of entry of contamination while personnel are decontaminated. The washrooms wear full IPE and are in risk of becoming heat

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Limitation primarily for these reasons:

- The hot and humid conditions within the CS compartments.
- The NBC DPE limiting heat loss from the body primarily by inhibiting the cooling effect of sweat evaporation.
- Radiation heat production in the CS seems to enhance the physical level of underlying stress.

CINCPLEET advised that during entering the CS is "too hot" and that the CS teams are unable to decontaminate sufficient personnel entering the ship before succumbing to heat stress. Accordingly there is a risk that ships will be unable to operate on a contaminated seasurface because of an inability to decontaminate personnel by entering the sealed CINCPLEET locked DPM to reverse the problem of heat stress in CS teams and to suggest methods to reduce the problem. This paper is a summary of the review.

To assess how best to reduce the problem of heat stress on CS teams three main factors have to be determined:

- The *environmental* (external thermoregulatory mechanisms) primary response of stress and the thermal sensation of the clothing.
- The environmental conditions in the CS primarily temperature and relative wetness (sweat production in T relative humidity).
- The metabolic heat production of the CS teams when working directly related to their physical work rate.

The thermal variations imposed by the clothing are well understood and have been measured in a number of studies conducted by NIM, other MOD departments, such as Chemical and Biological Defence Forces Division and the Army Army Personnel Research Establishment and also the Canadian military who used the same NBC suits. Less clear were the likely environmental conditions in the CS when operating in a hot climate and the physical work rates of personnel undertaking the CS duties. To measure these two above measurements were carried out.

Measuring the environmental conditions in the CS when operating in warm and hot climates.

Two surveys of environmental conditions in the

CS were conducted on a Type-23 destroyer and a Type-23 frigate during the summer months whilst operating on the Red Sea. These surveys measured the environmental conditions in the CS with and without the model wearing during a range of NBC exercises. An extract from the original work¹ is reproduced here.

Within a personnel shield box is continuously the case when (usually) there was no ventilation through the CS and the environmental temperatures were greater than those on the upper deck and would be likely to injury significant heat stress in CS teams. When the shield was penetrated conditions air passed through the CS via pump intake and the reduced wet bulb temperature (T_{wb}) so that the air became drier (less humid) although it remained 10°C greater than that in the shield (14°C lower than in the appendages). Air (T_{air}) and surface temperatures (T_{sk}) were reduced to a lesser extent and remained 2-3°C greater than those in the appendages.

The prevailing environmental conditions for ships operating in waters other than the Red Sea can be measured from Defence Standards and when dry-bulb are used to estimate temperatures in the CS calculated in accordance with the findings above we find that reported CS conditions for operations in the Persian Gulf are:

- NATO climate M1 (arid hot) -
CS T_{air} = 43 °C, T_{wb} = 15 °C
- NATO climate M2 (arid intermediate)
CS T_{air} = 38 °C, T_{wb} = 15 °C

Thus we now have a good estimate of the environmental conditions reported in ships operating stations when operating in the Middle East.

Measuring physical work rates in CS teams. Each CS is manned by two personnel described as a trained end-user and a support user. The trained end-user is responsible for removing contaminated clothing from personnel entering the CS and the support user is decontaminating the responder. The CS team

¹ The original work was done whilst both authors as temperatures in the production climate laboratories. The various measurements began at the comparatively temperate sea areas where high humidity combined with moderately high temperatures are typical of the tropical climate characteristics.

may be expected to produce personnel continuously through the CS. A second concern was modification to minimize the metabolic demands (physical work rate) of a range of personnel undertaking these tasks. The rate of body heat production is in direct proportion to the physical work rate and the more quickly heat is produced the more difficult it will be to reduce heat stress. It is therefore important to minimizing the overall level of physical work in CS tasks, whilst the appropriate cooling strategy can be developed.

A survey of six trained CS personnel was undertaken on the Type 25 CS conducted at Plymouth HM Coastguard, each volunteer undertaking the study in turned underwear and the temperature suit. As personnel worked in 'decontaminated' personnel in the CS data reported was collected from the front of their S10 respirator suits. Douglas bags away two meters and the bags were analysed to determine the exposure to volume and oxygen and carbon dioxide concentrations from which metabolic rate (metabolic rate VO_2) can be calculated. The mean (SD) VO_2 values during decontamination routines were approximately 118 (7.4) ml/min/kg for the decontamination and 37 (11.8) ml/min/kg for the respiratory suit, representing approximately 50% and 17% of predicted maximal work capacity (PWCmax) respectively. There may be considered in light to metabolic work rates although they would contribute significantly to heat production.

The mean weight of the subjects was 77.0 kg, accordingly adjusting VO_2 values can be calculated by multiplying the weight adjusted VO_2 values (ml/min/kg) by 77.0. Thus, mean absolute VO_2 values when working within the CS were 9.0 (8.1) L/min (SD 6.1 (7.1) L/min) for the respiratory suits and 2.9 (2.7) L/min (SD 2.0 (2.4) L/min) for the trained underwear. During light to moderate exercise, each liter of O_2 consumed represents an energy consumption of approximately 20.0 kJ. A liter of O_2 consumed per minute represents an energy production rate of 340 W. Metabolic activity is approximately 30% efficient and thus 70% of the energy produced by metabolism is lost as heat during physical exercise. Therefore in a VO_2 of 1 L/min it approximately 340 W of heat will be generated, and significant increases in body temperature will occur when heat loss mechanisms are impaired because of environmental conditions and clothing restrictions. Accordingly from the results gained in this study we would expect the

temperature suit to be working at approximately 150 W and producing heat at a rate of 100 W. Likewise, the trained underwear would be working at approximately 300 W and generating heat at 210 W.

Parsons (20) work has shown that for a sample of subjects, stepping on and off a 12.5 cm block at a rate of 12 complete steps per minute represents a work rate of 330 W with a mean body weight of 69.6 kg. Accordingly undertaking such exercise would accurately simulate the work rate of the trained underwear but would overestimate (by 100%) the work of the respiratory suit.

It was concluded that due to the known workload and gross heat production within the trained underwear will experience a greater level of heat stress than the respiratory suit and thus the workload could be simulated in the laboratory by stepping in a height of 12.5 cm at a rate of 12 complete steps per minute.

Review Of The Proposed Solutions

- Use work-rest schedules to allow 'underwear' to cool intermitently.

Plymouth HM Coastguard HM Coastguard do not have Monitors or Systems or any W/ devices that they have trained underwear working in a self regulated alternating machine pattern, were able to monitor and decontaminate the suit right and then a further eight personnel in a continuous process or underwear. A decontaminated five personnel then stepped with underwear 1, who decontaminated suit and so on.

This solution was considered feasible primarily for three reasons:

- Extra personnel would be required for this.
- Human heat loss mechanisms may be insufficient to match metabolic heat production and environmental heat gain over a period of environmental conditions in their environment. The previous study has undertaken on January. Human body temperature could continue to rise during rest, and in such, rest would be of no thermal benefit.
- Due to space constraints the training underwear would have to sit outside the changing station on the container and upon deck and would be at increased risk.

† Work rate would increase to proportion to time on suit.

‡ Work rate 300 W.

§ Work rate was 330 W (Parsons 20).

¶ Work rate 330 W.

*** 'Buddy Buddy' technology**

In this system personnel in gaseous environments wear either a mask or hood and communicate directly through the hood for dedicated CS issues. This solution was abandoned because:

- Upper-level personnel will not have sufficient exposure for decontamination and cannot properly breathe water which increases the risk of drowning due to choking
- Breathing apparatus may already be saturated with hot steam and be unable to decontaminate properly

The buddy buddy technique should be appropriate in ships such as HMS Ocean if trying to subdue amphibious or land forces that had not been able to decontaminate on land. These troops are already trained to buddy buddy decontamination.

*** Cool water dry the air within the CS compartment**

This solution was not considered feasible because:

- It would require prohibitively large air conditioning units due to the surface area from the stack through the CS compartment
- Condensing the air may be significantly slower than the clothing water driers and may only have a small effect upon chlorine levels which is cleared primarily by scrubbing from production. A French Navy² derived this but found minimal problems, as was possible NBC IPF when working lightly as an air inspection of water 10°C.

*** Actively cool the CS personnel**

The main reason behind the IPF limits had less to do with the transfer of water upon directly cooling exposures of water. Personnel cooling would be achieved less from the risk to reducing exposures or reducing conductive cooling. Evaporation is enhanced by blowing air through the wet suit to the skin after which only if the air is drier than the air within the clothing microclimate. Conduction cooling was considered feasible, based placed close to the skin. A review of microclimate cooling options in relation to RN helicopter crews has been published previously³. Considering the physiological effects of the various cooling technologies, and also the pros and cons of each of engineering any of the cooling techniques

or technologies, it was agreed with the training team at Phoenix, NRCO School that only two techniques would be appropriate for CS threat level exercises under the tests:

• Option 1 - low water

Factor of a water based gel⁴ are known as a decontaminant, known as IPFL. They are plastic sheets (a cotton woven cloth) made from IPFL, sometimes are available⁵ which is worn under the clothing. They are produced from the skin as the gel melts. They are cheap and easy to use, although there are a few problems:

- They need to be worn near to the skin (under IPFL) and this not replaced regularly for maximum effectiveness
- They add another 1.4 kg of weight
- They are an additional coating (over clothes) only in the sense which might further restrict oxygen properties

• Option 2 - forced immersion

Dipping hands in water at 10°C can reduce heat at a rate of up to 200% even when NBC suits & water gloves are worn⁶. The technique requires the provision of only water buckets or standard game boxes filled with chilled water. The major concerns for this technique is that personnel would be unable to work whilst hand cooling. Furthermore it is not known whether it would be best to allow CS issues to become significantly hot and then allow only 15 minutes hot air exposed CS overexposure to be performed to cool the 15 min minutes between each person being decontaminated. If the latter the more appropriate interface between decontamination facilities for personnel cooling to be more effective is an interface cooling facility that be almost as effective as hand cooling, however cooling is naturally to be effective, through the layer of the body being wet and NBC protection and personnel would be unable to remove them as a contaminated CS.

Assessing The Effectiveness Of Cooling Options

With low personnel evaluated for work for 100% by RN low lighters, and low maintenance a number of studies investigating the effectiveness of hand immersion in hot elements, ...⁷ and foot cooling, all have been performed under less conditions, or BOM a chronic chamber in these

² There are under the 1000 compartment (1000) in some ships, etc.

women performed wearing either NBC EPE or CS for lighting lat (Fluorescent) and for 1 worked in the cold room in addition to their 10-minute CS duties (1.1 steps/min² 21.5 cm blocks). Also, the climate used previously was a T_{db} of 40°C and T_{wb} of 28.0°C, midway between the reported CS T_{db} in NATO M1 and M2 climates approximately 4°C to 6°C greater than the reported CS T_{db} . The data from these studies can be compared to give an indication of the role or effectiveness of the various cooling techniques as particular to conditions close to those reported when undertaking CS duties. An evaluation of data from studies such as with the same work rates and climates as above but without wearing NBC EPE¹² allows us to take into account any differences that might come due to the clothing rather than NBC clothing worn in the previous cooling studies. Finally, a previous evaluation of heat exposure in NBC EPE, in which the work rates and climates were different to those above, nevertheless gives an indication of how effective hand immersion in cool water was when wearing NBC gloves (open and sealed). The previous heat lighting studies were undertaken with naked hands, when the cooling rates would be expected to be greater as the hands had direct contact with the water.

The ability to compare previous studies lies in their design, in that all of them had 1 control condition where subjects undertook their exposure as for the other conditions (either evaluation interval, hand cooling or) but without the exposure, may make study them correct after measurement of the direct effect of an intervention and to compare different techniques in different studies is, whereas in these experiments (or others) compared to the controls. Each previous study used a number whereas reported measures, design, in which all subjects undertook a very condition in a balanced order and the differences between conditions for each subject were computed. As many of the studies were undertaken under more environmental conditions, and with the same work rates as is possible, to compare the data satisfactorily in for a repeated measures analysis of variance (ANOVA) where appropriate, the authors has been undertaken. Where appropriate, the data presented can only be considered as an indication of potential differences between conditions and previous studies.

Figure 1 shows the effect of acclimation on the rate of increase of body core temperature simulated using insulated military naval T_{db} during work at the base, when the data show a

Figure 1
In which T_{db} is temperature (T_{db}) during work as a hot environment (T_{db} 40°C) whilst wearing a Fluorescent lat and the effect of acclimation on heat stress ($n=10$)



in Figure 1 is, and the rate of increase of T_{db} was rapidly only estimated by the increase at a rate of 0.4°C/hr (Post 61).

There are limits to the body core temperature that ideally would not be exceeded. These limits are inevitably to be set in the following values:

- 38.0°C (39.0°C above normal) Control
- 39.0°C (40.0°C above normal) Fluorescent
- 40.0°C (41.0°C above normal) Design

Work at 38.0°C personnel wearing insulating clothing will be hot, very hot and close to collapse, although they are unlikely to be a trouble, if one group (either significantly debilitated or injured) to return within the CS and EPE for much longer. Working at 39.0°C could extend the safe limit time until the caution level was reached by 17%. However, it is unlikely that personnel would reach comfortably within the CS and not have a very hot period when hand immersion would be undertaken. Figure 2 shows the effect of acclimation.

Figure 2

Reduction in core temperature (T_{db}) during post exercise acclimation in a hot environment (T_{db} 40°C, T_{wb} 28.0°C) whilst wearing a Fluorescent lat and the effect of acclimation on heat stress ($n=10$)



rate of heat exposure as reducing T_{re} during peak exposure time in the heat.

Analysis of the data in Figure 3 showed that air velocity estimated cooling over the control by 0.7°C for hand immersion in 30°C by 2.0°C for hand immersion in 40°C water by 1.7°C by (3.4±0.6). If hand immersion is water at 40°C were employed, personnel at risk of collapse in the Chinese zone as described above) would be cooled quickly with their skin body temperatures returning to close to normal within 15-20 minutes, much quicker than for the air vent. However, comparing hand immersion with an air vent as during hot only is unfair, as the latter technique has a benefit during work also (see Figure 1).

Using the rates of rise and fall of T_{re} shown in Figures 3 and 4 the effect of various workload schedules (the rate of working to resting time) and the total CB exposure time on body core temperatures measured by T_{re} can be modelled. Comparing the working and resting data of a study where NBC (PE) was worn¹⁰ with values where EM fire fighting clothing was worn¹¹ allows us to input the model to consider the effects even of the cooling techniques when used with NBC (PE) clothing. Figure 3 shows the predicted T_{re} values for total exposures of up to five hours with work periods ranging from 10% to over 80% of the three hours spent working.

Figure 3
Predicted T_{re} over time dependent upon the ratio of work to rest periods in a hot environment (T_a 40°C, T_{sk} 26.5°C) wearing NBC (PE)



Figure 3 shows that personnel working continuously would reach the Chinese limit within 40 minutes and escape the danger zone in 65 minutes. If 50% of the time were spent cooling then personnel would reach the Chinese limit within 100 minutes. If personnel were required to leave the CB for three hours, they would be

able to work for less than 40% of the time to avoid entering the danger zone. Figures 4 and 5 show the model's prediction of core temperatures when using an air vent as hand immersion (during rest).

An extrapolation of Figures 3, 4 and 5 shows that, under all the cooling techniques, would extend the safe working times irrespective of the ratio of work and rest periods. However, in the total time spent in the CB, if the same time spent in the CB was expected to be 60 minutes, at least 50% of the total time, he is not to avoid entering the danger zone, this is reduced to 11% using hand immersion or an air vent. If the total exposure time was two hours, the safe work pattern would allow 25% of the time for rest, reduced to 15% and using an air vent or 30% using hand immersion. For a three hour exposure the safe work pattern must allow slightly more than 60%

Figure 4
Predicted T_{re} over time dependent upon the ratio of work to rest periods in a hot environment (T_a 40°C, T_{sk} 26.5°C) wearing NBC (PE) and an air vent



Figure 5
Predicted T_{re} over time dependent upon the ratio of work to rest periods in a hot environment (T_a 35°C, T_{sk} 26.5°C) wearing NBC (PE) and immersing hands in 40°C water during rest



and time reduced to 45% using an air vest and 35% using hand immersion. There is a direct heat response, with heat loads that can be reduced from 17 meters to 80 meters of work on an air vest and 107 meters of work hand immersion in 10°C water.

Discussion

The simplest potential methods of reducing heat stress in CS personnel (wearing 1 CS suit), locally, locally, immersing, and providing air conditioning within the CS) are either impractical or would be ineffective. Consequently, only a method of directly cooling personnel would reduce heat stress and increase the capability of CS teams to operate personnel contaminated with NBC agents.

Using a model to calculate data from previous studies, it is predicted that if personnel could be given water and hand cooling and CS team heat stress would be reduced by using an air vest or continuously placed hands in 10°C water. Considering the simplicity and effectiveness of hand immersion, it is recommended in the preferred method of cooling, subject to proper medical considerations of the model's predictions.

Further improvements in the rate of cooling during rest and the work capacity of CS teams might be achieved by using water outside the 10°C for hand immersion. The colder the water (between 10°C to 18°C) the greater the cooling benefit with both naked and gloved hands. If used water were to be used (18°C) the cooling gradient between the water and the skin would be larger and the rate of cooling should increase. However, with colder water there is a risk that skin blood flow may be reduced (from vasoconstriction) and this reduces the warm blood in large vessels in the body core (arteries and the liver of heat) through the skin in the water is compromised.¹ Consequently, the body core temperature remains elevated and heat stress is not reduced. As cooling appears to be effective when naked hands are immersed in 10°C water, cooling gloved hands with colder water should be effective also since the larger vasopressor when immersed in 10°C water is greater than NBC gloves, not more than water. All other things being equal the temperature of the finger skin will be an underlying factor on skin blood flow and accordingly cooling efficiency.¹

Even more advancements in cooling rate might be achieved if hand immersion and air

vest techniques were used together. No comparative data was available to predict the effectiveness of these techniques simultaneously. The conclusion being the techniques together in this cooling is larger surface area of skin (skin and hands) might generate vasoconstriction and paradoxically reduce the rate of cooling. It is recommended that such an endeavor be conducted.

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Professor Mels Toplin, Head of the Environmental Medicine Unit (EMU) and Dr Adrian Allsup, Head of Applied Physiology IPM for their critical advice.

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Research

Testing the Effectiveness Of Techniques For Reducing Heat Strain In Royal Navy Nuclear, Biological And Chemical Cleansing Stations' Teams.

J R House, H Lunt, A Magnien & J Lyons

Abstract

Four personnel simulating the work of an NBC cleansing station (CS) in conditions expected in Middle Eastern waters had a limited work duration due to incorporating heat stress. When the subjects were allowed five minutes rest periods after every 15 minutes of work, the endurance of work of the subjects was limited to between 75-80 minutes due to heat stress and heat illness. By the point of withdrawal from (SW) total temperature (T_{re}) had risen by 0.8°C (0.4°C). The other two subjects were withdrawn earlier because they reached cardiac safety limits. When the hatch was removed (FR) in 10°C water during the five minute rest periods heat stress was significantly lower (P<0.01) and work endurance times were increased. One subject was withdrawn early on reaching cardiac safety limits, two on reaching T_{re} limits (0.8°C) in 10°C water and one subject completed the 15 minute exposure with a final T_{re} of 38.4°C (0.4°C). Using cool 10°C water than 10°C water for the 10 minutes required heat stress (P<0.01) and increased endurance times. Three subjects were withdrawn early on reaching cardiac safety limits the remaining two completing the 150 minute exposure with a final T_{re} of 38.7°C (0.3°C). Using an air test (FR) in comparison with 10 l/min oxygenated tap water (P<0.04) and cool tap water times. Two subjects were withdrawn early on reaching cardiac safety limits the remaining two completing the 150 minute exposure with a final T_{re} of 38.7°C (0.4°C) while 10°C 10 water was used and T_{re} 38.0°C (0.4°C) when 10°C 10 water was used. There were no reports of large increases in loss of electrolyte due to FR and all personnel were able to tolerate their own individual

Protective Equipment (PE) without difficulty. It is expected that using FR will not reduce the ability to decontaminate or analyse, others. The 10 techniques and IV exposures should be considered into the FR, level, water should be used in preference to 10°C although any water colder than 10°C will provide some benefit. The IVs increased heat gain and personnel should be down on (with decontamination) exposed prior to their use and ensure that their protective clothing will dry or obtain a larger rest.

Introduction

Heat stress comprises the Royal Navy safety to operate when personnel have to work in nuclear biological & chemical (NBC) individual protective equipment (PE) in an attempt to improve the efficiency of personnel wearing PE, particularly when working in ships, NBC cleansing stations (CS), INM and close team protection, capes to model the likely consequences of new coating techniques, heat resistance in cold water and air work¹ on personnel exposed when operating in a Middle Eastern climate. The study showed that both air, water and heat resistance in 10°C water should significantly increase safe working endurance with heat resistance during observation and provide being the most effective. The study was in this to model the effect of using heat resistance and air tests, comprehensively due to a lack of such data. In addition the previous study was unable to assess the effectiveness of using water colder than 10°C as an extra stress test for decontamination.

Considering only physics we would expect

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¹ The test was conducted over two or three days which are placed in the pattern of 10 l/min oxygenated plastic water (10°C) which is a test unit for energy contained over the test (the House 100) at House 100 for a test.

that greater cooling would occur during head immersion with colder water as the temperature gradient is larger. Cooling is more effective when the head immersion water temperature is lower than the range 10°C and 16°C.¹ Accordingly 10°C water should cool an even greater rate than the colder temperature previously named 8°C. However if an alternative physiological mechanism is possible then colder water temperatures would cause peripheral vasoconstriction thus blood flow (MHR) would fall and the cooling rate which depends upon high MHR would be reduced. In subjects with a normal body temperature we would expect some vasoconstriction to occur when the head was placed in water below 16°C and be maximal at 12°C and below.² In subjects with a raised core temperature (T_{re} = 37.5°C) we can only expect vasoconstriction in water as cold as 10°C. An elevated body temperature seems to generate vasoconstriction in a less degree to vasoconstriction would be expected therefore head immersion cooling would not work if it is possible that higher cooling to 10°C should not significantly influence MHR. However the choice be confirmed where experimental evidence.

Although it is clear that cooling the extremities using 10°C water does not seem to influence MHR when T_{re} is raised previous work³ has indicated that MHR is compromised when whole body cooling is applied even with water temperatures as high as 15°C. Consequently it seems that when small body surface areas are cooled (i.e. the distal limbs) core temperature decreases, MHR control systems, which larger body surfaces are cooled, thus temperature (T_{re}) is dominant. Therefore, there is a risk that cooling the hands and the torso can result with a significantly larger area of skin to compromise MHR and consequently reduce the rate of core cooling.

This study was conducted to:

- Confirm that the benefits for steps 1/2 were thought to be provided from head immersion and are not as produced by modifying, and heat
- Assess if cooling efficiency by head immersion can be sustained by using 10°C compared to 8°C water
- Assess if air vents can be used to further reduce cooling times when used in conjunction with head immersion

It was hypothesised that:

- Head immersion in 10°C water would cool

hyperthermic subjects more quickly than head immersion in 12°C

- Combining head immersion in 10°C water and air vents would cool participants more quickly than head immersion in 10°C water alone

Methods

The study was a simple assessment of the effectiveness of head immersion on core and a combination of the two for cooling participant working in MRC 101. It was carried out following internal ethical approval of the experimental protocol by the MODON Personnel Research Ethics Committee.

Subjects

The male volunteer subjects who were randomly fit, with no history of vascular disease, could spare various space in the hands or fingers from others, collapse on exercise or spinal conditions were recruited from local military establishments. Following a medical examination for the nature of the experiment, their involvement in the experiment to be stable and the role of participating was explained before their written informed consent was obtained. Finally, none of the volunteers completed their involvement in the study, the work being undertaken for operational duties after the experiment had started.

Environmental conditions

The experiment was conducted in HMMA climate chamber in which the temperatures were controlled to simulate the conditions expected within the MRC 101 at a day-spring in NATO standard measure (climate 101). Understandard⁴ is expressed in the British Rail. Accordingly the chamber was controlled to mean (SD) values of 26.7°C (2.7°C) dry bulb temperature (T_{db}), 23.3°C (4.2°C) wet bulb temperature (T_{wb}) giving a wet bulb globe temperature (T_{wgb}) of 28.0°C (3.2°C) and a relative humidity (RH) of 70%.

Procedure

On each day the subjects arrived having abstained from alcohol for the previous 24 hours, with no consuming drinks for the previous 16 hours and having eaten a light breakfast. Subjects were weighed (to underweight) and then measured before dressing in MRC clothing and being weighed again. The subjects then started stepping at a rate of 12 steps per minute to and from a box 73.3 cm high \times

substrate work rate of approximately 100 W²⁰. The subjects stopped on a stopping signal of an observer, which followed by two minutes rest for a minimum of three hours²¹. After completion of the experiments, subjects were weighed (clothed and in underwear).

On each day the subjects undertook one of the following experimental conditions:

Condition	Reasoning
Control (C)	Baseline to measure effectiveness of cooling interventions
Heat treatment at 38 °C (H ₃₈)	Cooling treatment in response to heat 38°C stress
Heat treatment at 40 °C (H ₄₀)	To assess effect when cooling problem is increased
H ₃₈ and wet suit (H ₃₈ -W)	To assess effectiveness of combined cooling
H ₄₀ and wet suit (H ₄₀ -W)	To assess effectiveness of combined combined cooling

The conditions were undertaken in the following balanced randomised order according to a Latin square design:

Subject Number	1	2	3	4	5
Day					
1 (heat C)	H ₃₈	H ₄₀	H ₄₀ -W	H ₃₈ -W	C
1 (heat H ₃₈)	C	H ₃₈ -W	H ₄₀	H ₄₀ -W	H ₃₈
1 (heat H ₄₀)	H ₄₀ -W	C	H ₃₈ -W	H ₃₈	H ₄₀
1 (heat H ₃₈ -W)	H ₃₈ -W	H ₄₀	C	H ₃₈	H ₄₀ -W
1 (heat H ₄₀ -W)	H ₄₀	H ₃₈ -W	H ₃₈	C	H ₄₀ -W
2	3	4	5	1	2
2 (heat H ₃₈ -W)	H ₄₀ -W	H ₃₈	H ₄₀	H ₃₈ -W	C
2 (heat H ₄₀ -W)	H ₃₈	H ₄₀ -W	C	H ₃₈ -W	H ₄₀
2 (heat H ₃₈)	H ₃₈ -W	C	H ₄₀ -W	H ₄₀	H ₃₈
2 (heat H ₄₀)	C	H ₃₈	H ₄₀ -W	H ₃₈ -W	H ₄₀
2 (heat C)	H ₄₀	H ₃₈ -W	H ₃₈	C	H ₄₀ -W

1 HBCD available - full gel cover underneath - wets, DAB liner and HBCD exposure and the applied water removed (1 beyond latex removal, HBCD wash & remove, water over gloves, water over gloves underfoot removal).

2 This is comparable to the work rate reported of those undertaking the 'bump' condition - rate of 2.5 W from 100 W phase (max).

3 This condition is 1/3 wet (water decreasing) pressure continuously with the subjects not knowing every time individually being 100 W exposure.

During the experiment the subjects were provided with water ad libitum to drink, using the HBCD exposure drinking system. The subjects undertaking an air rest condition, the rest was allowed per prior to starting the application of the water overall and the HBCD removal. Generally the rest was used for approximately 10 minutes before commencing the cooling exercise.

Withdrawal Criteria

When stopping the subjects were stopped and asked to commence their resting condition (heat treatment etc.) in line of any of the following:

- Body core temperature (T_{re}) which exceeded 38.5°C;
- Heart rate that was greater than 180 beats per minute (b/min) or the individual's predicted maximum (220-age);

Subjects commenced work in the heat of the next scheduled work period providing that the withdrawal given above had fallen below the stopping limits. Subjects were stopped, cooled and then returned back to the experiment when either of the following happened:

- The appearance of any visible redness level of a frequency of more than five per minute;
- The subject reported dizziness and tingling in the fingers on early signs of excessive cooling;

During hand immersion conditions the subjects would have been instructed to remove their hands from the water if any finger pad skin temperature (T_{sk}) had fallen below 35°C on any time or below 37°C for more than 15 minutes in any single period - this did not occur.

During the air rest condition, when T_{re} was also measured and the water stopping criteria for finger T_{sk} was applied, as described in paragraph 4.3.4. No subject had to be removed due to heat T_{re} being too low.

Measurements

Body core temperature (T_{re}) was measured from rectal temperature (T_{re}) measured using a thermometer inserted to 15 cm beyond the last sphincter.

Mean skin temperature (T_{sk}) was obtained from a weighted mean of T_{sk} recorded by thermistors at four sites (left thigh, upper arm and lower arm) in the hand immersion condition. T_{sk} thermistors were placed upon the index and little finger pads.

Heart rate (HR) was recorded by a telemetry (physiological) system (MRE Instruments, Lisle).

Environmental temperatures were recorded using a wet bulb globe thermometer (T_{wb}) and local air-surface water temperature was recorded using thermocouples.

All thermocouples and the T_{wb} meter were supplied by Grant Instruments (Cambridge) Ltd (UK). The data from these instruments were recorded in real-time intervals on an electronic data logger supplied by the same company.

Work (cardiac) rate was assessed by collecting expired air from the subject's nostrils at the 30 MRC equivalent Douglas bags during work periods. The volume of the gas collected in the Douglas bags was measured using a dry gas meter (Edward Inc. USA) and the oxygen (O_2) and carbon dioxide (CO_2) content using gas analysis (Servomex Ltd). Temperature of the gas (Grant Instruments Ltd UK) and barometric pressure were recorded.

The effect of wearing an vest on expired cooling rate was assessed by measuring heat loss rates on four subjects with and without the vest on the shoulder circumference, chest circumference at the axilla and circumference between breast and waist circumferences.

Calibration

All thermocouples were checked for accuracy at three points in the extremes and the mid point of the maximum measurement range (T_1 35.0°C; 37.0°C and 40°C; T_2 0°C; 30°C and 60°C). The thermocouples were held in these temperatures in a precision water bath (Grant Instruments (Cambridge) Ltd UK) and compared to a UKAS certified 1000 precision digital thermometer (Dipton Ltd UK). T_1 thermocouples were corrected if they deviated from the calibrated value by more than 0.1°C. T_2 thermocouples if they deviated by more than 0.5°C. The gas analysers were calibrated prior to each experimental session using a certified calibration gas (BOC UK).

Medical and ethical considerations

Medical procedures and statistical analysis followed those laid out in POM 1, Schedule of Approved Procedures,¹ and the Protocol for the Independent Medical Officer (IMO). The experiments complied with the Declaration of Helsinki.

Statistical analysis methods

The linear statistical model for a repeated

measures design of five conditions (a linear additive model) of main effects of conditions and subject. However the analysis can also be extended to four conditions (i.e. all except the Control condition is compared to a factorial design with conditions decomposed into water temperature at 10°C / 0°C as one factor and air and water surface as a second factor. The statistical model then becomes a linear additive model of main effects for subject, water temperature, air and water surface and interaction term for the latter two factors.

Analysis of variance was used to classify any significant factors and differences in body temperatures between the five conditions and also between the four conditions (i.e. all except the control condition). Where no significant interaction arose between the two main factors (water temperature and air and water surface) the main effects of water temperature and air were examined to establish any differences within each factor.

The statistical language GENSTAT² was used to conduct the analysis.

Results

Four subjects completed all five experimental conditions (45 experiments in total) and the following data and analysis are from these subjects.

Mean water temperature of dry skin

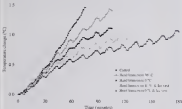
The mean (SD) temperature was measured during the work periods, varied between 18.0 (0.8) °C, and 17.8 (0.2) °C, over the five experimental conditions. There were no significant differences in the measured work (variable) rates between the conditions.

During the rest Control condition experiments two subjects were a different study (75 and 85 minutes) on reaching 1, time (194°C). Five were conditions on experiment taking duty with 'singing light' (i.e. 100 Watts) 75-100 minutes. The last two were conditions after 10 and 15 minutes due to incorrect setup hours from (produce safety limits).

In the 16 experiments conducted using one of the four cooling conditions, two were cancelled only due to reaching 1, time, five due to incorrect setting hours from and two due to reaching limit rate limit, no one requiring taking off. Additionally two other experiments

¹ These conditions are processes of how safety hyper-ventilation leading to oxygen being levels over and being.

Figure 1
Mean change in rectal temperature (T_{re}) during work and rest periods (in °C)



even is essential only that 10 (non subject) test specimens that covered on day one.

In summary all subjects in the control condition were withdrawn during the period 70-100 minutes whereas in the cooling conditions 20 of the 70 experiments continued until the scheduled stop time of 180 minutes.

Statistical analysis and graphical representation of results

Data during the periods 0-60 and 60-120 minutes have been separately analyzed. Rates of change of temperature per hour have been estimated from data available during the time period being analyzed. Through the three hour exposure time the subject reaction declined due to progressive habituation of perceived heat as striking out of the safety withdrawal criteria. Inactive subjects were progressively withdrawn from experiments as they reached safety threshold as is difficult to represent the mean response from all subjects graphically. To overcome this the first response from an

subject, who participated in all test conditions for at least 70 minutes on each exposure was used to represent the data graphically. In addition, the data are presented as changes from time point zero rather than absolute values to enhance the spread of data due to inter subject variation and to better visualize the changes due to the cooling interventions. All statistical analysis was conducted on all available, available data from the test subjects.

Rectal temperature (T_{re})

A graph of the mean changes in T_{re} during work and rest periods is shown in Figure 1.

Over the period 0-60 minutes T_{re} rose more quickly in the control condition compared to the two cooling conditions (5°C and 10°C) and these rates are given in Table 1. During the period 60-120 minutes, no significant difference arose in rates of T_{re} change, dependent upon the 10 minute temperature but a significant difference occurred due to working vs rest rest. The decline was given in Table 2.

Table 1. Estimated average rates of change ($^{\circ}\text{C}/\text{hr}$) of rectal temperature (T_{re}).

Time Period min:sec	Condition (gall)					Significant differences of means
	Control	HE 10°C	HE 15°C	HE 10°C IV	HE 15°C IV	
0-45	1.19	0.45	0.78	0.60	0.46	0.07
45-120	0.6	0.32	0.40	0.38	0.24	0.10

Note: Sample size for all control subjects is period 0-120 minutes.

Table 2. Average difference, in rates of change ($^{\circ}\text{C}/\text{hr}$) of rectal temperature (T_{re}) dependent upon the basal conditions under temperature and whether an ice vest is or was.

Time Period (minutes)	Difference in rates of change of T_{re} ($^{\circ}\text{C}/\text{hr}$) (gall)					
	Due to HE under temperature (HE 4, at 0-15°C)	ice	Statistical significance	With and without ice vest	ice	Statistical significance
0-45	0.06	0.06	No	0.12	0.06	Yes
45-120	0.11	0.07	No	-0.17	0.07	Yes

Note: 1 = ice in the control and white difference
at 0-15°C (0-45 min period).

After 75 minutes rectal T_{re} was significantly lower up to all the cooling conditions compared to the control (by between 0.05°C to 0.15°C) (and 0.09°C, $p=0.01$). After 75, 90 and 120 minutes T_{re} was 0.10°C to 0.27°C lower when used, rather than 10°C water was used (and 0.10°C, $p=0.05$). When an ice vest was used T_{re} was further reduced at all time points by 0.21°C to 0.29°C (and 0.10°C, $p=0.04$).

For the subjects that completed the 3 hour exposures, or even withdrawn due to hypotension or reaching T_{re} safety limits, the mean (SD) values at the end of their exposures were as follows. In the Control condition seven subjects were withdrawn between 75-105 minutes with a T_{re} of 38.7°C (0.3°C). In the HE 10°C condition two subjects were withdrawn at 105 minutes having reached T_{re} safety limits, neither was completing the three hour exposure with an end T_{re} of 38.4°C (0.7°C). Using cool water for 30 minutes no subjects in comparison the climate exposure with a final T_{re} of 38.7°C (0.5°C). Using ice ice vest (IV) in comparison with 30 minutes seven subjects to complete the 3 hour exposure with final T_{re} of 38.2°C (0.9°C) when 10°C HE water was used and 38.0°C (0.4°C) when 10°C HE water was used.

Heart Rate (HR)

Over the period 0-45 minutes HR rose more quickly in the control condition compared to three of the four cooling conditions ($p<0.05$) but was not significantly different from the HE 10°C condition. For the period 45-120 minutes, the rate at 105 min was not significantly different between the cooling conditions, although there was an indication that the ice vest helped to attenuate the rise in HR ($p=0.1$).

Increase in heart rate

During the IV exposure all three had some pain. In the four subjects assessed the largest changes were for the chest (chest frequency which increased by between 7-18 bpm) and for the wrist which increased by between 14-32 bpm.

Subject comments

The subjects reported that they felt the IV allowed cooling only for the first hour. Assessment of the skin temperature under the IV indicates that the skin cooling benefit was maintained at least for 45 minutes, with the ice packs coming to have up to some use, between 45 and 90 minutes. In most cases the men agreed to allow at least a 30 min cooling benefit up to the end of the three-hour period (30

exceeded by reduced skin temperature and mean body temperature). When the TV was removed they increased and decreased despite the volunteers being unable to view under the MLC. IfH that the TV was still used at the end of three exposures. There were no reports of fatigue, maintenance loss of dexterity due to IH and all personnel were able to resume their own life without difficulty. It is expected that using IH will not reduce the ability to demonstrate or maintain skills.

Discussion

Personnel simulating the work of a tunnel welder on a shop's MLC CS in conditions expected to occur during operations in the Middle East were trained using working capacity primarily due to heat stress. If the hands and person were introduced after every ten minutes upon discontinuing their study most welders will be between 75 to 80 minutes although for some personnel it is all the time. As a tunnel welder one demonstrates a person approximately every five minutes. This will allow up to eight personnel to be processed through the CS each hour. The use of CS throughout will be reduced when the CS units are fully reduced to their requirements to self-disassemble. If personnel were unable to rest periodically and had to work continuously their tolerance rates will be less than assumed in this study. When the time spent self-disassembling is considered the rate of throughput of personnel through the apparatus may actually be reduced by the CS units continually working time when allowed require their own periods.

Using IH as either wear temperature significantly extended personal endurance. Heat stress is described by T_{sk} and heat loss was low when environmental heat resources were employed and further reduced when CS units were used. Hot areas were not used in situations (medium level maintenance) or previous work showed that few lights were needed more effectively during maintenance hand maintenance than planned work or any work and therefore the use of overhead lights was not allowed. If IH technology were possible.

Although the rates of change due to heat under a simulated working in using IH and compared to IHF under the analysis of the body temperature at discrete time points showed that temperatures would be lower if work tasks were used as performance in addition to a stress to maintain work would rather than work as a

It also appears that, in some cases, personnel in the present may be able to

particular responses. If a worker contains a measure of body mass and solid or other that can be isolated approximately then it can be estimated that the worker is close to IHF and can be described as such. Trying to change work to a specific temperature (or IHF) appears to be impossible in the industrial and commercial.

Using IV in comparison with IH further enhanced body cooling and extended personal endurance to at least three hours in terms of body temperature and would probably extend the period for longer. Using IV was enhanced overall cooling and resulted in lower body temperatures and heat rates. Although the subjects report that the work had less than resting power after between 45 and 90 minutes the data would suggest that a cooling time is not maintained for up to three hours. In summary the work provided a considerably longer in addition to first observation and the cooling appears to have been maintained well for up to three hours. If personnel worked continuously personal endurance would be less due to loss of IH cooling during rest periods.

Personnel should be able to off-pair their work and rest (IH) periods due to their perception of their level of heat stress. Using IV should allow personnel to have shorter cooling (IH) periods, thereby increasing their availability for work and reducing the throughput of the CS system. It is expected that many personnel using both IH and IV would be able to work on the CS for at least three hours and possibly longer before being required to be relieved due to heat stress.

It should be remembered that personnel working in CS will still be significantly hot; also their skin and personnel in their coverage should be implemented with an understanding and adaptation.

Wearing an IV increased time and heat rates. All personnel exposed to rest in IV showed by time on work (rests are given) and before, as expected, and not as much as their other personal clothing will be.

When personnel no longer exposed any loss of feeling in their hands after IH and it were able to remove their own (IH) without difficulty. Accordingly, it is expected that using IH would not detract from the ability to demonstrate or maintain skills.

Conclusion

Work was shown two minutes that after every 10 minutes of work personnel working the

Operational Medicine

Exercise Destined Glory

Dan Connor



Surgeon Commander Mark McInerney and LRA (Dr) Collette do a check-up on one of Dutch mine-ambushers caught in a trap.

For the first time since the Principal Medical Officer of the CNS has been a general practitioner, a surgeon (Surgeon Commander Mark McInerney) and an anaesthetist (Surgeon Lieutenant Commander Dan Connor) were deployed on HMS RLS BORGIE to provide support and support for the multi-nation amphibious landing exercise – Destined Glory.

The exercise was predominantly for command

and control training, especially for the newly formed COMUSMACVTFOR, and involved American, French, Dutch, Spanish, Indian and English forces, at sea ships HMS RLS ROYAL, her four Hag Officers on board. The final stages of the exercise involved an amphibious landing by Dutch marines from their assault ship HULAN ROTTERDAM.

After a light test wave of casualties ROTTERDAM's medical staff were asked to provide a further second batch, so they reported

Surgeon Commander's assistance (Dr Connor is a naval general practitioner) is available.

support support from A&E, ROYAL, and the support, unattended, and IAMA (St John Ambulance) were there in to prove the system. Whilst on board BOSTERHAM we were provided with a full list of the selected two facilities and shown to medical capabilities.

The Church Defence Medical Services are not up-dated differently to those under UK. One of the most significant differences was that their equipment to the MA branch is mostly made up of equipment carried by civilians, all of these are stored in laboratory and X-ray suite. Some are also further qualified in intensive care nursing, theatre nursing or in use of the B&B (B&B).

The British government has declared that medical care for deployed military personnel should be equivalent to that found in civilian hospitals. This policy is well known by the way, medical facilities in personnel and deployed. The lesson is best explained by using the example of the casualty officer. Forty five casualties were referred to the ship a sick by the landing craft, having been injured and given first aid in, current status. They were met by eight members of casualty handlers (from five main medical ships) and carried in large order in to a large vehicle left in the ambulance, at a time and direction the larger dock.

From here they were quickly in assessed and then cleared from the left. The first few highest priority patients being taken straight to the resuscitation bay, the others cleared off to other all accidents to be brought to the same level. The majority on bay was brought and cleared of the larger left through a single one-way door.

The resuscitation bay had four internal beds. Each bay was staffed by two nurses and consisted of a large adjustable frame capable of taking military patients, whilst a clipboard, medical with all necessary drugs and equipment, a Pausa (St John Ambulance) of 12 air beds and paper oxygen and suction from an overhead supply. During the exercise one doctor was assigned to two resuscitation beds, one to monitor the situation as several and one to return medical consultation. The CRD of the hospital was in place all around.

After assessment and appropriate treatment casualties were taken into the ward area of the PT exercise. The ward was able to take a total of 12 casualties including two intensive care patients, with all personnel from the exercise, led to a short transfer to the group station. The facilities were appropriate for the CRD and also possible.

Two of the highest priority casualties were admitted to intensive care right laboratory following, mechanical gas and wounds with resuscitation, haemodynamic instability. They were taken in to the theatre area, having been examined and set up for their operations.

Theatre was located directly forward of the resuscitation bay and comprised two fully adjustable operating tables, with overhead operating lights in declined position. Image intensifier machines (with paper oxygen and suction) in each positive light machine and overhead and well stocked drug sets and equipment cabinets in theatre. All this was within the same overhead compartments.

Ahead of theatre was the laboratory and blood room. Forty cases of frozen blood were held in the theatre. Ahead of the laboratory machine and blood room. In addition forty cases of fresh frozen plasma were stored. The automated laboratory was capable of measuring all the basic venous and arterial parameters requested in theatre. Radiology facilities comprised a portable C arm X-ray machine with monitors that could be used in the resuscitation bay or operating theatre. In addition there was an ultrasound machine in resuscitation in theatre. B&B developed equipment.

The BOSTERHAM design has attracted a great deal of interest since it was launched in 1998. According to Ministry documents the new system (HOLMES FOR THE WIT) is due to be built with further modifications to allow a more substantial capability to g. order during high to lowdown other design of landing craft. Many other nations have ordered similar craft.

Warrior support (anastomosis) did not mention the medical capability of the highly capable ship. However, it is apparent from the design that medical care of battle casualties was considered as a top priority during the design phase. The ability to receive personnel from the flight deck, straight on to the resuscitation bay is a huge advantage in the time critical casualty and also in flight deck operations.

The use of high quality civilian support and available equipment throughout was advantageous in the support and unattended on other subject from civilian hospitals rather than from a specifically military background. In addition the provision of frozen blood and PPT with medical documents to the selected capability.

With this design the presence of a more

equipment was a huge asset. In a three channel system this would line up the anode/cathode to provide input and excitation and alternate row patterns while still representing the core of the data in present form. The extensive wiring of each row channel allows for great adaptability especially if confronted with 25 lines a day laboratory requirements.

There were some problems with the fixtures and design, but nothing unsolvable. The examination by stretch lenses did not allow lens down up though they were highly effective. Labeling of the day and equipment

detectors was convenient. The twelve led used was as fast as double track. The X-ray was C and only had one set lens being sufficient for good close X rays.

In summary, the design and capability of HAROLD KOTTERDAAM was highly improved would allow any future modification or expansion to continue work without further delay. In the absence of a language barrier and would provide excellent equipment even run to its maximum. A good worth using for

Personal View

Why I Joined the Navy

Don Connor

As a 21 year old medical student I had little idea as to what direction I wanted my fledgling career to go. I was startled by the seemingly endless opportunities that were available with a medical degree. The one thing that I did know was that I was nervous of these ships had taken a year and below-study medical school and gone overseas to do something new.

As the natural curiosity for the wide range of medical specialties I really help someone who had worked at medical school thinking General Practice and was now thinking something like but I don't know what. As one of these here I met the then Service Commander John Curre who worked both cardiovascular, chest and also of a good life and great career. Once again intrigued I accepted the offer of an appointment that which included my first real journey at work in five hours and about ten minutes' experience as a medical and an engineering commanding of a business launch when our appointed transport facilities came up. I was hooked. There is no such thing as a free lunch.

However, my desire to join the Navy from that point was not a result of Malvern history but based on the pre-eminence of an organization that could fulfill our desire to broaden my horizons and develop in an individual before working as a medical specialist that I could choose at a later date. So I ran away to the unknown point at the end of one great opportunity.

Early naval medical officer cadets will be familiar with the pattern after that point. All over in my case, family, home jobs, NPMOs course including Government and then off to sea. I joined HMS Gifford joined Torpoint Indian Ocean survey and Co for later West India. The ship that was more a large part of the reason I joined the Navy (and why I did not join the RAF) and fulfilled my aim of doing

something different. My peers remembered that I had been away for an enormous amount of general duty. I was happy.

Eventually I made a decision and volunteered upon an obstetric career upon placed in to the Mary because of the profits in consultation and clinical medicine that was afforded by working on the SRD job within the understanding environment of a Naval hospital here and a half year after full registration. Another highly positive aspect that quickly showed upon me was the emphasis on education and training. Compared to my NHS peers I had previous financial and time advantages that allowed me to attend courses and fully prepare for my exams - all of which I passed at the first attempt as a result.

So the end of my time as an unqualified SRD I wanted to go again (NMC). During this time and now with a small child at home I had to make a decision - stay in the Navy or leave for the NHS. The pay (stagnant) paid/potential choice of education, an extra day/month and limited training a year already outweighed the cost (domestic deployment, lack of social a long time in the sea and point to I stayed.

I have just entered those a year in Australia - a trip that many of my colleagues have also made. During this year I worked in Australia's famous hospitals and met by one of the world's leading endocrinologists an hyperphagia medicine and also for a helicopter based service and some of experience being in the Navy made it help. Differences to the organizational aspects of working in family overseas and the hyperphagia follow a job was created headed I was funded - usually a 11.1 conversion and service with no follow in junior staff.

Clinical training often attracts wide comments about inquiries, money. However the opportunity to work with the world's best in a chosen area is a highlight and remains a significant stimulus to those trying to decide if they should do their specialist training within the

Regional Liaison Committee Don Connor is a Specialist in general in Australia

Training (with Adventure, Travel & Clinical)

Views of a Far Eastern Passage: Colorectal Surgery in Singapore

Michael J. Dunn

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Experiments for Higher School Teaching in General Electricity emphasize that the final two years of training should be spent as a self-study year. It is to be expected that during this time the vast majority of electric supply classes and academic topics will be devoted almost entirely to the independently selected in this subject is listed in the following table.

Entomology is an increasingly popular specialty and responses for posts which we have advertised until now in the United Kingdom are large. Additional overseas problems of interest within Medical Health Service organisations exist in countries in which the production of a complete specialist response is far from guaranteed. Such organisations might prefer to look overseas in search of professional emigrating staff responses while working during its commitment training year in British Hospital Officer in the Mark 1 Hospital now held out in offer of 12 months in surgical registrar in the Department of Colorectal Surgery at Singapore General Hospital (SGH). Once this placement has been approved by the Joint Committee on Higher Vocational Training (JCVT) of the Singapore Royal Colleges and the UK's Advisory on General Surgery, the planning of a major study overseas based, is advised.

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A slightly humid tropical climate overlies the park, averaging from 24°C (75°F) with an average relative humidity of 55% a wet month drops to 40%, to such oppressive conditions. Accumulations were recorded on 10% of the old forest between 1980 and 1982, a condition of

Editorial Comment: Richard H. Day, MD, FACP, FACC, FACC
Single or serial? A controversial subject at the ACC/AHA
Workshop.

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armies killed and white Americans found alongside the former military gulf and country club a few miles from the city center. Their bones are now administered by the Dutch High Commission, whose relationship with military personnel is strictly reserved.

The new knowledge was spent growing in sync with the geography of Singapore mixed with the help of a superbly efficient and clean public transport system including the new and old Mass Rapid Transit underground system, the Singapore bus, which means a state of various work places and family considerations made. Singapore we all the age of postmodern Malaysia in the heart of South East Asia and we were determined to take full advantage of the ideal location for using travel within the region as obvious to a thorough exploration of the very diverse history, sight and sounds of East were still.

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

It is important to mention that there was an air of business and high morale and it was obvious that employees held a better job in their hospital. Efficiency was perhaps everything that the doctors felt of the educational institution (Shon G Levy) through all paragonism (transmission) and periodic reports in their original form. Compliance of further diagnosis and HCV testing, writing prescriptions and a small number of paperwork eventually allowed full cooperation with the Singapore Medical Council, with full clinical and laboratory tests.

MNH established an IBMH observatory in 1988 where it looked back over its harmful legacies, while the Brevard community in Palm Bay, Florida, through an act of fortuitous timing, also laid the first North Bay and Indian communities and the opening of new MCH in 1981. Subsequent to government cleanup contracting in the 1990s (Fig. 4). Following further negotiations initiated by the Ministry of Florida, MCH finally under the management of Southwest Health Services.



Figure 1
Singapore General Hospital with view
of the city

For Ltd (ShangHua) when the company was incorporated in March 2000. As Singapore's largest hospital, its 1000 beds account for a quarter of the total nationwide. Around 60,000 patients are treated annually, and 600,000 attend clinics, cared for by 450 specialists.

A patient is admitted within a specified insurance category (from A1, through to C), determined by his or her level of health insurance or ability to pay, and that is supplemented to a variable extent by the government, such that C-class patients are totally subsidised. While this system has little bearing on surgical treatment itself or priority category, its patients have considerable single visit costs, with air conditioning and theatre fees, whilst C class patients are managed on low overheads (personal confidence rather similar to a typical NHS ward in the year 2000). A1s and B1s beds cost S\$250 (1112) and S\$350 (1270) per day respectively, with in ICU, but in their categories costing S\$700 (1270) and S\$250 (1250). A hospital bill for a five day stay including target colorectal surgery such as an anastomosis and new rectum, was estimated at S\$1700 (11,240) and S\$1500 (1200) for A1 and B1 patients, respectively.

The hospital received intensity in 1995 with two haemorrhagic complications, the successful operation of Singapore's largest 1990, after a 96-hour operation and the treatment of four coagulase following a Singapore Airlines air-cast disaster in Taiwan¹.

Department of Colorectal Surgery

Established in 1989, SGH's Colorectal Unit has expanded its service reputation for excellence

the world over, comparable to large units in the west. Professor Francis Chow, Chairman, in addition to his surgeons, list of publications on many aspects of colorectal disease, he is an internationally acclaimed endoscopist and has published widely on such matters. He leads an outstanding team, each committed to high level patient care, within colorectal surgery including polyps, anastomosis and pelvic floor disorders, in addition to a heavy commitment to colorectal cancer and benign colorectal diseases. These services are supported by excellent endometrial and endoscopic ultrasound, endometrial physiology, videoproctography, haemorrhoid and colitis, and a 30-bed colorectal ward and an Intensive Endoscopy Unit (IEU) are run by extremely conscientious and able doctors, and over twenty patient folders, including check list, instructions for nursing staff, and constantly updated comprehensive medical records, allow for optimal patient care.

Patients admitted to day were allowed to the day register when was required to limit the subsequent care and follow up. Although overall operations was provided by the Registrar's consultant, operating was always the privilege of the registrar or first operator. A busy, partly colorectal, multi-surgery workload, colorectal predominantly of acutely threatened polypoid haemorrhoids, abscesses, sigmoid, rectal bleeding and associated abnormalities, leaving for emergency procedures was made via the direct to theatre and necessary the emergency theatre cost of fees was rarely a problem even for relatively minor cases.

Each working week lasted 56 days, including Saturday mornings, which were dedicated to weekend meetings, made and Professor's Grand Rounds, the Unit being held from weekly on IEU, and covering the most fundamental of all colorectal diseases, by Professor Chow, in the patients' bedsides. Other high-level cases, such as cancer, were mostly emergency, and always (Chow Chow).

Outpatient clinics could also be a challenge, largely on account of the language barrier, overcome with much goodwill and sympathetic staff. Attempts to form Malaysia formally, however, acceptable, was definitely the increasingly complex hospital policies.²

Spectrum of Colorectal Disease

A unique spectrum of disease, in Singapore, undoubtedly reflects differences in the combination of environmental influences and genetic predisposition compared with the West.

Colorectal Cancer

The incidence of colorectal cancer (CRC) has increased markedly by almost 5% since 1988 and is now similar to that of Western countries (approximately 40000/100000/yr) and higher than the Asian average. CRC is the most common cancer in Singapore for both when combined the Chinese population being a quarter and compared to Whites and Indians (colonisation effects), for example accounts for 7.1%, 8.3% and 8.7% of all cancers in these respective ethnic groups. The incidence in Chinese Singaporeans is lower than of Chinese in Shanghai. Molecular genetic studies of colorectal cancer specimens from the Singapore population reveal generally similar mutation spectra to those of Western populations (which supporting common aetiological factors) although a lower rate of microsatellite instability has been noted.¹ Clinical presentation too similar to those reported in the West with left sided cancer (proximality) and most all of Dukes' Stage C. Reported synchronicity of 4.1% is also similar to Western figures, and over half of new patients present with either loco regional or distant metastatic disease (including stage IV) with peritoneal carcinomatosis. In 1998 in Singapore only 10% of cancers were Stage A, but elsewhere, perhaps are more with similar frequency in women (who form the basis of colorectal population screening). Prolonged use of table (traditional) Chinese medicine may be responsible for delayed more advanced presentations and public awareness of the importance of CRC amongst the Singapore population is poor reflecting an apparent lack of education of this 'silent killer' (only 1 Awareness of 1.84 with intermediate and gallbladder in this population have been observed²).

Inflammatory Bowel Disease

Incidence based data for Crohn's is increasing in Singapore. Prevalence of ulcerative colitis (UC) and Crohn's disease (CD) are estimated at 6.6/100 000 population and 1.7/100 000 respectively compared with UK prevalence of about 100 and 30 per 100000 respectively.³ UC is relatively more common in Indians than in Chinese, or Malays with no racial differences seen for CD. Over a 5 year period in 1998 only 2% patients reported abdominal surgery for IBD (2 for CD and 1 for UC) with similar pattern of disease to those reported in the West. The pace is relative early

inflamed paperoscopy (proctoscopy) colonoscopy for diagnosis whilst including minimally invasive procedures have been published by the unit.⁴ Such growth procedures are equally consistently performed in Singapore for Falciform Adenomatous Polyps (FAP)⁵ the subject of much important research work originating from the polypose registry and laboratory.

Diverticular Disease

Colonic diverticular disease (cervix) is less common than in the West. The distribution of diverticula differs markedly with a relatively higher prevalence of right sided diverticula. Severe sigmoid disease is common in the UK is unusual although the presence of left sided diverticula leads to a cluster for per colonic involvement. Proctitis, particularly of right sided diverticula is usually with both often accompanied haemorrhage rather than inflammation, and severe complications⁶.

Invasive & Metastatic

Local invasion at, metastatic haemorrhoidal disease and metastatic resect, premetastatic third and fourth with in distal large. Metastasis affecting the anal canal⁷ (obstruction (Fig 2) and islet (Fig 3) are amongst conditions encountered most frequently in the surgery than in the UK.



Fig 2
Invasive (perineal) cancer
From the anal canal (rectum)

Singapore Agents

A dedicated colorectal therapy with patients staff aided with an extensive operating workload starting properly in 1993 has finished in completion of the last booked case



Figure 1
The efforts of nurses, on an elderly Chinese female, despite her size, to insert the sigmoid into her barium enema procedure as usual.

examination of rectum and sigmoid in the women of a work the Chinese population in this district. In fact nearly all have had run treatment to maintaining efficiency, but operating and coloproctologic treatment into South Chinese showed a request all day but no suitable perhaps time to live, instead treatment too in those times doctors and was to seven personal cases such as fibrosis, and haemorrhoidectomies. Detailed surgical records were immediately computerized permitting fast rate and accurate retrieval of data for study purposes. The comparison of each work capacity was an absence of working time.

In discussion to detail the whole spectrum of colorectal work in Singapore is beyond the scope of this paper. Valuable work on functional disturbances, including "strong stool" (constipation) and a range of problems affecting the pelvic floor¹¹ will not be described. I first choose to concentrate on surgical aspects of three important diseases: colorectal cancer,

haemorrhoidal disease and anorectal fistula, and as we doing highlight study significant contributions which have been made to the literature by the Singaporean surgeons.

Colorectal Cancer

Colonoscopy is the predominant investigation tool used in 2024 for observation of internal bowels and indeed for many acute upper symptoms such as abdominal pain, much less, always being placed in coloproctologic context, minor examinations. This preference relates even to the emergency setting of acute large bowel obstruction and colonic bleeding. The skill and confidence required under such circumstances is acquired by a large volume elective colonoscopy workload and ready access day and night to the endoscopy suite for emergency procedures. More than 2000 colonoscopies are performed annually. A full day has usually observed at 13 to 20 colonoscopies, frequently increasing to 25 and in occasions exceeding 30 a phenomenal quantity by any standards. The success space is clear that this is made possible in Singapore on account of surgical ethics in similar pattern is indicated, although the relative lack of significant spread of chronic disease there certainly has some bearing on success. Cancer has also been viewed that maintaining such large numbers results in high quality experience, but there is no doubt that significant pathology has been poorly observed in particular. Further rapid diagnosis of the disease is achieved by high technical skill using means of an endoscope and manometry, all a single scope. Follow-up careful examinations during a day's work and back to the suite. Many patients are not without producing a very cooperative subject and rapid features of internal light picture in hand.

Approximately 750 colorectal operations are performed each year in 2024, the majority by cancer. The preferred approach is open and total colectomy, both for elective, emergency, and non-emergency procedures in a full day, four (LAP) day course involves several hours long with duration of abdominal wall muscles and extensive exposure, rarely. This may be particularly advantageous for certain tumor growth rates, but for most colorectal carcinomas expert assessment and good lighting which is effectively provided by an illuminated deep S. With a reference. Critical packing of weight turned away from the operating field ensures a safe direction of the spread and left

colic (14). The laparoscopic approach, and others, left location of the inferior mesenteric vessels. Full mobilisation of the splenic flexure can be a challenge but is achievable with careful dissection, even in the obese patient. Indeed the relative lack of left-sided discomfort during the laparoscopic readily allows for the safe use of the sigmoid colon for colostomy and colonic anastomosis making full bowel mobilisation frequently unnecessary. The particular value of the LIF approach is the excellent view afforded into the pelvis allowing dissection to the pelvic floor in the anterior mesorectal plane. High ligation/ectomy is easily also performed through a minimised gas-inflated incision, an approach more familiar to UK surgeons and associated with significantly fewer post-operative recovery/functional problems usually for UC and FAP was also satisfactorily performed through a minimised laparoscopic incision (comparing favourably with the laparoscopic rounded approach¹⁵). While laparoscopic coloproctology can be achieved with such minimised approaches, application of such techniques to the average UK colorectal practice should be on a very selective basis in view of the high incidence of sigmoid dysplastic disease and colitis.

Laparoscopic colorectal resections are now performed infrequently for CRC in UK, although full participation in the international multicentre CLASICC trial comparing open versus laparoscopic resection was accomplished¹⁶. Whilst the arguments of CLIC are very considerable with laparoscopic surgery and have reported good results for anterior (AR) and abdomino-perineal excisions (APRE)¹⁷ there appear to be no significant advantages in either clinically minimally invasive open techniques. Two operative recovery following elective anterior resection through a LIF incision in the Singapore population was remarkably equal with low postoperative requirements for pulmonary complications and the delay to achieve clinically average hospital stay being less to seven days¹⁸. Indeed, while bladder and sexual function may be adversely affected by the laparoscopic technique and this approach has been largely abandoned¹⁹.

With approximately 10 to 15% of all colorectal cancer involving adjacent organs, multi-organ resections for advanced primary CRC may be indicated on a selective basis. Locally advanced cancers of the hepatic flexure

with malignant invasion of the duodenum are not best amenable provided that resection of the duodenum is complete which may necessitate pancreaticoduodenectomy²⁰. In the pelvis the bladder is the organ most commonly involved by CRC; presence of urinary symptoms may differentiate malignant from inflammatory involvement but in all cases an effective palliative strategy is recommended and long term survival is possible²¹. Hartmann's procedure may be preferable to APR for locally advanced low rectal cancers providing good symptomatic control without the potential complications associated with a pelvic resect²². Total pelvic exenteration by a minimally invasive route may occasionally be indicated for locally advanced disease in a relatively fit well motivated patient with no evidence of distant metastases²³.

Much interest is placed on surgical staples which are the preferred mode for all small bowel including decreasing closure and wound problems²⁴ and colorectal anastomoses using their introduction into stapling pouches 20 years ago²⁵. Stapled stapling allows either colorectal anastomoses following total colectomy resulting proctocolectomy or in a population statistically prone to Crohn's (Fig. 1). However the disadvantage in reducing anastomotic rate in a significant component of bowel function with almost a third of patients following anterior resection (AR) developing anastomotic insufficiency pouch syndrome resulting in incomplete evacuation²⁶. Others may suffer excessive urgency, frequency and coling and the anastomotic syndrome is undoubtedly a multifactorial phenomenon to which anastomotic injury inflicted by increased staples²⁷ and loss of rectal reservoir may contribute. Conversion of a 'hastmann' might be expected to prevent some of these symptoms and defect over the optimal method of anastomosis continues. Use of a small 5-6cm column 3-pouch procedure better function than a straight anastomosis within the first six months to a year, predominantly by reducing anal frequency but by two years between the two methods is similar. Fluorographic studies demonstrate that reduced anal frequency with a column 3-pouch may be related to better covering better entrance of liquid stools in the distal colon²⁸ perhaps by acting as a primary pump, displacing the pressure of more colonic movements by a continuous propulsion before they accelerate the anal sphincter complex²⁹. Comparison of the use of sigmoid colon versus

descending colon for the 1 point in the Singapore population shows an significant shift, closer to between 1° point, reflecting the higher degree of sigmoid diverticulosis disease. A further shift, deepening the anterior pouch with a novel transverse mesocolic fold (type) reflects more a straight caecocolic relationship (revealed a higher level risk for the latter group for longer sigmoid defecation and less mechanical leakage on the first four points). Sigmoid impingement however was more common compared with the pouch (points) and by 100 just 20% risk to defecation in between.

There is no consensus amongst colorectal surgeons on the most appropriate follow up policy after treatment for CRC. Does staging and local spread measures may allow stratification for intensity of follow up? As 30% of CRC patients are entered into a surveillance programme at the adjacent National Cancer Institute, Colonoscopy is undertaken annually following CRC treatment until the colon is clear of polyps and thereafter 3-5 years as well as regular liver ultrasound and tumour carcinoembryonic antigen (CEA) monitoring. A national gap approach CEA later (after 10 years) may be an important marker of colorectal metastases, which become evident at follow up? Immunological faecal occult blood testing (FOBT) may provide sensitive detection of metastases and recurrent cancer or post-operative surveillance but with a sensitivity for detecting adenocarcinoma polyps by this method of only 14% it is unlikely that adoption of this novel approach could safely allow the frequency of colonoscopic surveillance to be reduced?

Cancer recurrence following curative resection is a devastating complication for which the prognosis is usually dismal. Published local recurrence rates vary considerably depending on case mix and reported for individually reported individual failure on many cases. Adjuvant treatment particularly radiotherapy for locoregional recurrences is usually endorsed by the Singaporean oncology, reflects many physical or causal oncologic surgery? Combined adjuvant 5-Fluorouracil based chemotherapy and radiotherapy following curative resection, however is preferred in Asian patients with only moderate toxicity? Reliable local recurrence rates from NCI analysing over 1000 patients undergoing curative resection for cancer (1942 in 10-year period age 18-64 and 1794 at five years for colon and rectum respectively with rates of 12% and 24% at five years?

Does staging tumour penetration into adjacent organs plus tumour grade and location set the most important adverse factors for recurrence? Histological analysis of 161 primary rectal cancers showed the increased depth of tumour penetration beyond T1 was correlated with an increased incidence of lymph node positivity which is more marked for patients under the age of 40 (T1 33.5%, T2 58%, T3 68.1%, T4 80.7% compared with stage patients: T1 3.1%, T2 3.2%, T3 64.7%, T4 76.6%). Although the stages obviously more aggressive tumours in younger patients, this does not seem to be borne out by a poorer clinical outcome and survival in the group, at least in the Singapore population? Surgery for recurrent rectal cancer is frequently overvalued and suitable patients for radical or resection or local preservation are usually low? However palliative surgery often provides the most effective means for dealing with disabling symptoms such as bowel bleeding, anaemia, discharge, tenesmus and obstruction?

Minimally Invasive Disease

Symptomatic haemorrhoids in the Singapore population are common and may be partly explained by the more frequent use of the squatting position for defecation. Since 1990 procedures for haemorrhoids are performed mainly at NCI.

Quadrant open haemorrhoidectomy remains standard practice and is less relatively bloodless and operationally less painful than conventional circumferential haemorrhoidectomy? Analgesia requirements are also less with discharge compared with closure for closed haemorrhoidectomy? but the open technique seems to lead to fewer more unstable wound healing? Use of the Harmonic Scalpel® confers no significant additional advantage. Patients, whether undergoing haemorrhoidectomy under general or local anaesthesia, are managed on an ambulatory basis or discharged the following day.

Minimised haemorrhoidectomy which entails certain pathways of the submucosal resection maintains integrity of the capillary endothelium, preserves rectum tone and reduces anal pain, may be suitable for minimising symptoms of bleeding haemorrhoids, or as adjunct therapy following haemorrhoidectomy to reduce the risk of recurrences haemorrhoids although the data on its absolute benefits are inconclusive? Radical (Whitehead) haemorrhoidectomy is a difficult and generally unpopular technique for external and

haemorrhoids and is associated with a high incidence of wound dehiscence and sepsis. It may be a particularly undesirable technique for older patients who are less able to generate sufficient sphincter spasm to resist the intended flap-tuckage.¹⁰

Recently described proctopexy (also post a particular challenge to conservative treatment is frequently inadequate in all patients presenting in this way as SOH undergoes extensive haemorrhoidalisation which provides rapid relief and a long period of normal activity. Although this can be a daunting prospect if left high enough, colonic and well demonstrated diverters usually permit an easy descent. No significant difference in complication was shown in a large study, both techniques comprising 284 anastomoses with 500 closure cases¹¹ and the proctopexy and of sepsis, whilst their postoperative mortality is



Figure 2
Non-instrumental (non-invasive) SOH
Figure 1 proctopexy

Revised haemorrhoidectomy (anastomosis) has become a popular method in keeping the diverting and proctopexy haemorrhoids¹² and will now SOH procedure in a new form performed in SOH. This method is effective, relatively painless and associated with an earlier return to normal activity compared with conventional haemorrhoidectomy although it is more expensive¹³. Using a specially designed circular stapler, a section of a rectoanal diverticulum¹⁴ of various and volumes present on the haemorrhoidal zone, following their reduction, produces an effective and long life (Fig 3). Various modifications have now been made to longer, complete disruption of the sphincter¹⁵ is a particularly suitable for infirmity surgery¹⁶

and can be used for severely prolapsed haemorrhoidal piles¹⁷. It has not gained universal acceptance in the UK, which may partly be explained by expense and also by inadequately satisfactory results resulting from leaky anastomosis and massive patient related. Several complications have been reported including life-threatening intraperitoneal sepsis, peritonitis from sequestration of the full thickness of the rectal wall or the staple leaving the area too weakly for managed conservatively¹⁸. Rarely, peritonitis develops despite anastomosis following conservative treatment, the haemorrhoids and conventional haemorrhoidectomy¹⁹ put that two problems anastomosis.

Anastomosis and Piles

Amos TNO procedure, introduced an anastomosis for external sepsis SOH. When finding an area on the sigmoid colon, the staple line anastomosis is a low grade sphincter and of anastomotic sepsis²⁰ and can be totally left with by haemorrhoids²¹. Leaving open of a few haemorrhoids with drainage of an acute postoperative abscess is considered less as experienced bleed, is usually safe and is associated with a lower risk of serious sepsis, without significant impairment of continence^{22,23}. For higher or more complex lesions the proctopexy, use of a linear stapler, rules in the case using of an external sphincter is fixed in anastomosis with usually in rectoanal dilation. This may be followed later by stapled haemorrhoidectomy or no external sphincter. The many proctopexy however, particularly studies can indicate leaving open of quite high grade sphincters. Radical without significant impairment of function and this is clearly the most effective means of continence²⁴. Manosphincterectomy, the finding of large vessels²⁵. Radical haemorrhoidectomy by the creation of a channel, using some experienced with sphincter and a haemorrhoid, should certainly employed as long as an effective low grade anastomosis in terms of healing rates and functional outcome is consistent if the disease, long is more proctopexy²⁶. Some examples in various studies indicate open sphincters, and even sphincteromy. Results have been managed in SOH using a long term follow up, as in long case case in terms of long years²⁷. Accurate clinical assessment of health haemorrhoid is possible with a proctopexy, long term as problematic cases²⁸. In the continued use of total colonoscopy in SOH, particularly



Figure 6

The children (and one adult) part of Raffles Hostel

manned 200 staff and patients in 1942) and Chang Prison.

Many other streets terminate inland, such as Borneo and Waikan, very easily accessible by land from Singapore for weekends of sun worshipping and picnicking from sunset sandy beaches. A walk a driving ride of Peninsular Malayan railroad Kias Sabra Prang Island (the Chinese Hokkien and Kiasa Lumpur, allowing us frequent) view of the jungle interior the beautiful and pure and not too pleasant. A warm Sunwell in Borneo island Malaysia brought equally sunset providers, the highlights here, Chang, Waikan, and Peninsular workers in their natural jungle habitat. In Thailand there was elephant walking in Chang, Dan and visits to mountain tribespeople watching around the 15th 16th island plus worldwide followed two journeys around Chang, Ma and Bangkok, in boat deck spent in talk, talk to talk in sunset golden Buddha temples and the ancient King's Palace. An equally classic view top was made to a colorful floating market but an appropriately peaceful view took at the River Kwai and Koedonban was cemetery.

The annual meeting of the Association Colonial Society was held in Perth, Western Australia (WA) a most fine hour, long from Singapore. A round sunset programme was implemented by which watching the steps to the Merganser River vineyards the tall have forests of WA Australia and the wild South coast all with sunset, sunset, sunset. The climate of WA was similar to a UK Spring, providing welcome relief from the oppressive temperatures of Singapore and serving as a reminder that one must in UK was summer.

Conclusion

This was an unforgettable year packed with integral activity and recreational delights. There is no doubt that the majority of both my professional practice and my family's have benefited enormously from this unique opportunity. I am sure that the incorporation of such foreign travel and training is not only of value to the NHS individual but the Service as a whole, partly as a life saving process but particularly as a means of maintaining best support standards at a time when the profession is in the public spotlight. Service support features should be encouraged to apply for overseas posts which might also provide a live for new overseas training opportunities in a Service context.

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Training

Overseas SpR4th Year Subspecialty Training Report August 2001 to August 2002

Dan Connor

Overview

I spent my Year 4 in Sydney, Australia. This year was approved by the Royal College of Anaesthetists prior to accepting the job which consisted of two half-year opportunities alternating between metropolitan during the year. Both of these posts are approved by the Australian Society of Anaesthetists for training to Provisional Fellow level (Australian level 4).

Our subspecialty was Hyperbaric medicine. The job was with the Sydney Aeromedical Service (SAMS) – also known as Sea Life Divers' Rescue Service, after its parent organisation and historical origin.

Hyperbaric Medicine

I was Provisional Fellow in the Hyperbaric Unit at Prince of Wales Hospital, in Randwick (the only public chamber in New South Wales), with Dr Michael Beckett as Unit Director and my direct supervisor. My role as Fellow was to be more patient than referee and follow through with management plans, supervise the daily antiseptics and endospore competence rate, compliance and local ward audits, ensure no patient referrals, teach nursing and industrial staff, assess patients and medical students, be involved in the unit's research programme and carry out original research. In addition I was responsible for call the out of hours during accident, and other emergencies that may have required hyperbaric treatment such as increasing wound size, loss of carbon monoxide poisoning.

The unit has a permanent staff of six, four staff specialists (anaesthetists) and an anaesthetist and supervisor were designated out of whom was always available for advice. This unit is the largest hyperbaric facility in Australia and even though my position was to be a full time equivalent Fellow, the nature of hyperbaric medicine with acute emergencies for virtually all patients

as another I directly managed virtually all of the patients during their treatment time.

This unit has two also had an established weekly meeting that was set up for monitoring of patients that bypass the chambers but was also used for regular audit and quality assurance. Several governmental agencies with which I was regularly involved.

During this year I was able to attend the two most significant meetings in the Australian Hyperbaric Landscape – the HTMA and ANZHBQ AGM (Hyperbaric Technicians and Nurses Association Australia and New Zealand Hyperbaric Medicine Group) and SPHMS (South Pacific Underwater Medicine Society) meetings. I presented a paper at the former despite having been in the country for only one month. The latter was in November and achieved some great during I also presented a paper at the ANZCA AGM, which will be published in 2001.

A target of this attachment was to be involved in the DipHBM (Diploma of Diving Hyperbaric Medicine) (This requires a two week course approved by the Australian College of Anaesthetists... see member in a related hyperbaric unit and an approved research project to be published in the JHMB journal I submitted the appropriate report and have had my research into a low flow oxygen for the Anaemia based approved research in the DipHBM. This will also be published in 2001.

Hyperbaric medicine is an evolving field of medicine, the results of which remain unrecognised by many physicians. There is also significant controversy over what is a reasonable indication for hyperbaric oxygen (HBO). During my year in Australia the government body that oversees payments for medical care within the public system (MBSHC) requested the evidence base for all hyperbaric indications; the first time systematically that such a review has occurred for any branch of medicine.

I was fully exposed to the highly educational process, which resulted in MBSHC acknowledging in

Figure 1: Current Committee Chairmen & Speciality Regions in Australia



neurology finding many new syndromes for which there is a lack of standardised controlled trials (RCTs) has a large amount of non RCT evidence (case histories, case history records, and self report questionnaires). This document was strongly opposed by the ASPCA Hypertension Medicine Group (which was chaired by Dr Bennett) and consequently is being reviewed by experts as well as being out of the medical best regarded hypertension physicians (mostly voted in as the president of the American Heart Association - American and Hypertension Medicine Society) is also a member of the American Endocrinology and a co author of Endocrine Related The Guide - a new right of handbook, this reflects the need of the evidence background to these areas, medical problems and decision making. As a result I received a free grant, in the concepts and practice of evidence based medicine which ultimately led to my writing an evidence based hypertension medicine website - www.bloodpressure.com

Resident Medicine

I worked with S&B as a Postgraduate Fellow

The job involved in primary and secondary prevention of patients from all over New South Wales transferred and many worked around and also by on a Wednesday.

The workload was predominantly secondary transfer of the usually all these transfers usually involved moving the patient patients with a need for higher level monitoring may be specialist interventions rather than merely first shifting. Often long distances were covered and several kind wing (TL) transfer would take over eight hours.

During the job I had 10 primary and 40 secondary jobs. Of these 26 were on helicopters 21 by fixed wing (which ultimately transported two card transfers) and 16 were by ambulance only.

While working as part of a team split, an extensive paramedic on the helicopter and pilot and flight nurse on the fixed wing, the medical aspects of each patient were entirely the responsibility of the doctor. Though unapproved every job was covered by the S&B medical director - Dr Gary Tall - who was also my clinical supervisor at S&B. In addition,

advice could be obtained for a 2-week interval discussion based on the preceding course (Medical Rules and Unit). Points of interest were discussed in the weekly training.

There were regular training sessions covering many aspects of primary and secondary warfare trauma and survival, including: coping skills in water rescue techniques, packaging a patient for hot climates, decontamination, aviation rescue, air transport and emergency care, simulation of ground casualties in an urban environment, assistance in difficult circumstances, day and night searching, helicopter training.

Research

The article that will be published in part of my DPhil on the SPUMS journal was an evaluation of a novel design of vest for the Afghan force – a square that allows a patient to breathe pure oxygen without having to wear a tight fitting mask, rather for movement in desert climate. The vest had set up square, high flows of over 30 litres per minute at 2.4 atmospheres to prevent build up of carbon dioxide. I designed and evaluated a vest using a vester device and a side line canister that allowed for much lower flow rates of 10 litres per minute and cost savings for the unit without requiring oxygen treatment on military carbon dioxide head up.

I wrote a paper evaluating the evidence for and against the use of BNO in threatened life and limb. The paper was originally a response to a query by one of the board members. However, despite an fairly negative conclusion it is under consideration for publication by the SPUMS journal.

As outlined above I also have under consideration a case study of hyperbaric pressures of London in America and New Zealand.

Publications

Casper D Casper D. The role of hyperbaric oxygen in trauma, multi-pointed. *Proceedings of the AFSCA 45th* Brisbane 1999. Page 121.

Casper D Casper D. Use of hyperbaric oxygenation in the treatment of Ulcerative Colitis. *J Clin Gastroenterol* 2002; 35(1): 98.

Summary

These two attachments were in highly specialized fields of medicine and only loosely connected with anaesthesia. However, as a military anaesthetist both of these areas are highly relevant. The job was of high quality from a professional and training perspective and were also allied with an increased interest of anaesthesia and reasonably appropriate in the stage of training.

Book Reviews

ABC of DIABETES FIBR Edition by Peter J Williams
London: J&J Books 2000 pp 108 ISBN 07176 18970 £12.95

I received this paperback fifth edition for review from three perspectives: as an occupational physician who sees quite a few service personnel with diabetes who are referred to a medical branch of service and as a general who manages to avoid his primary care duties for fear of being disturbed by one or two young!

The advice on implementation and habitation, given in the final chapter of reality is a sensible practical and sensible the clinical sense of these articles in Diabetes UK, diagnosis and I feel that the first (occupational) advice comes in the earlier chapters a lack commitment on achieving good control and avoiding complications.

The treatment of patients with diabetes has been so changed dramatically in the twenty eight years since I qualified hospital medicine and the treatment of six years since I delivered patients and in my own. I had missed every change even though I read my journals. My consultant at Queen Alexandra Hospital (Colchester) partially filled some of the gaps and a partly disposed diabetes education day led by diabetes specialist nurses at Portsmouth filled others. Reading this book has certainly made me better informed and I almost contemplated giving up my well beloved pipe.

Armed with this publication I instantly feel more confident about assessing the level of control of patients appearing in the board and I wish I had purchased an earlier edition when I had closed a lot of patients. I hope this fifth edition will make me a more confident person myself and I would recommend it to my colleagues in general practice and occupational medicine. There should be copy in every surgery.

My only minor quibble (and I sympathise as an editor and proof reader as typographical errors such as 'United Kingdom Perspective' and 'Diabetes Survey' the figure on page 7 also contained an as I feared for the + provided in the legend. The overall excellence of photographs, figures and tables outweighs my

nit picking observations.
By a and the way patients + + + + +

Book Details

5/5 Are You Tough Enough
The Real Story Behind SAS Selection
Bury Davies
Barnes (Penguin's edition) 2001 £9.99
ISBN 0 7012 1026 6

This book was published in a time with the BBC series of the same name having previously been published in January the SAS. Those who watched the series and are expecting the book to enlighten them further on the details of the selection process on the programme will be disappointed. There are only passing references made to the series and the personal analysis of their performance is confined to the introduction.

The main body of the text is superficial in the manner. There is really nothing relevant within it that would not be covered in basic training at the Army or Royal Marines for even the T&A. Any soldier preparing to attend selection would undoubtedly receive more comprehensive information and training than within his occupational. Future books have been written on subjects that occupy only a few paragraphs here and a comprehensive list of suggested further reading might enhance the book's usefulness. The version on video building could be improved by the use of simple line drawings and the words, I suspect, perhaps better described in a First Aid guide, would make this otherwise list of UK terminology irrelevant and the most accurate were eliminated for clarity.

What would have this book useful remains something of a mystery. Perhaps it has been released to encourage more men attack soldiers to try for a place in the second series.

It will not be finding a place on my bookshelf.

Tamara Commander Jane Rodell Consultant Anaesthetist & Anaesthetist J.R. served in the T&A.

Rescue at Sea Survival by Frank Gidder & Michael Tipton. Harlow: Harwood 2001. pp507 ISBN 0-7320-0710-5. £24.95

'Where Paul? Mike Tipton gave me a copy of his and Frank Gidder's book, for review. I willingly decided to do it myself' after all I had been an experimental subject for Frank at Durdley Park in 1977 and a subject in the Lyme Bay Island Laboratory trial in the mid 1970s, although I suffered the agonies of being resuscitated from my 'ditch' after 24 hours with intolerable vomiting and have provided medical cover for other experiments and trials.

I have now read the book, cover to cover, twice and find more confidence about doing the Guyot Ferry.

This book is not a textbook of physiology and physiological experiments, although most of its recommendations are written on that an untrained layman can understand them.

Basically this work is a hazard and risk analysis with proper emphasis on prevention or avoidance of hazards and minimisation of irreducible risk. It draws on the well-illustrated combined experience of the authors – both whole body physiologists who have stepped outside their comfort zone to gain their own practical experience of sea survival. The text is lavished by first reports and recordings to maintain the message. Each chapter has a helpful summary table/appendices for those who just want to be told what to do.

I present the book as intended for the North American market as the opening is in American and Adrian Gidder's MB has been translated into MB. I found the second chapter (Chapters 1-4) chapters 1-4 somewhat over

long, a compression was mentioned as under-estimating. The proof reader states a mild warning for 'false tongue' and my main bugbear is with technical jargon/abuse of words. As 2000 is the 25th anniversary of the publication of James Lind's 'Treatise on Scurvy' it is pleasing to see that similar as suggested before, the authors have bestowed a laudable on him.

'Who should read this book?' would certainly be a common finding for many groups in the Ministry of Defence who are concerned with ship safety and sea survival. For they members of high level management boards committee members concerned with water safety and life saving, personnel of personal protection clothing and survival aids for the Armed Forces

naval medical officers and medical branch ratings, and last but not least the Royal Navy Sea Survival instructors who require basic knowledge/refreshers of sailors. In the civilian sector this book should be read by amateur professionals and trainers including the Royal Naval Lifeline Association, with the Marine & Coastguard Agency and instructors in yachting.

Really, those most in need of this book are those from duty to read it – those who go to sea in small yachts, or offshore designed, for the leisure.

Paul Buitloch

The Unsurpassable Price of War. Falklands Hospital Ship St Leger by Andrew J. Buitloch 2001. Published Privately. pp127

Twenty years after the Falklands conflict, Surgeon Captain Andrew Buitloch, the Medical Officer-in-Charge of the Hospital Ship St Leger, HMS St Leger, and his colleagues, have compiled his memoirs from his diary and report log.

He recounts the Harbours efforts to get the ship based and staff and equipment before arrival in the war zone and then how the St Leger coped with the demands of war, the stresses of them by the working factors.

There were not surprisingly tensions, both within the medical staff and between medical and surgeons – Andrew distinctly refers in some of them and I loved his description of the surgeons were making signs and checking orders.

This book, now in the Harlow Library in the Harlow of Naval Medicine is a fitting tribute to the skills of not only the members of the Royal Naval Medical Service on board but also the F&G crew and the Royal Marine Bandmen. It tells, only with a quotation from a paratrooper (a casualty) who had been shot and from the several times in a minute at the Falklands Islands. The only thing that kept me going was the sight of this flying ship, ship with the Red Cross I think, if I could just make it there I was safe.

Well, words are good for those who were there, victims of naval medicine or who read as in memoirs of a hospital ship in modern conflict.

Paul Buitloch

A Mother's Mangled Skin, by Ronald G. Wilson
The Mangled Cloth: Spectacular 3002 ISBN 1
84104 048 X pp144 £17.95

Ronald Wilson recounts his life, wars and all from childhood. His doing so does not end reluctantly with the death of his husband when Ronald was a teenager and instead he could say at pleasure. He became a Sea Cadet Corps Officer whilst at Abchurch Medical School and after house jobs joined the Royal Navy in 1962. The opposite obviously had a career of being an elite leading elite physical training and being member of a Foreign Legionnaire. Wilson was sent to Longstone for Communist training (and undoubtedly he then had a gun held point to a Type 11 dagger before eventually joining 40 Commando in Malaya and being heavily involved in the Malayan confederations. At the end

of his commitment in 1966 he entered the Army of surgical training on the NWG estate in Aberdeen and then moved Edinburgh and Nottingham before joining a consultant post in Newcastle in 1977 and eventually on the field of breast disease. The trials and tribulations of NHS politics and mismanagement are graphically recounted in relation to his personal life and time in military care.

I find this book an interesting read as I have again a hint of the character he describes as the RM the RM, Brent and elsewhere and I enjoyed many of the anecdotes and recollections of his time as a Surgeon the NHS. There is he knew him very well to see what he has to say about those about an surgical training day that the account of the first and days afterwards.

Nick Widdows

Obituary

**Surgeon Rear Admiral (R) William Ross
Norman Foster CB**

William Foster, known affectionately to everyone as Bill, died on 12 July 2002 at Farnfield aged 84 years. He was born 4 June 1914 in Colington, Kent, into a naval family. However, his father was killed in the Battle of Britain in 1940, leaving his mother and three other sisters to raise him as an orphan. He spent his school years at Christ's Hospital, then went on to Guy's Hospital to study dentistry. He qualified LDS RCF (England) in 1936 and after a house surgeon's appointment joined the Royal Navy on a Short Service engagement in February 1937.

After an initial period on the Royal Naval Hospital, Haslem, he was appointed in 1939 Portsmouth and served a two year appointment as Surgeon on the Chain Station. His war years were spent in home appointments in Scotland (WME, Dundee), Northern Ireland (WME, Coleraine) and England (WME, Exeter) during which in 1947 he was promoted Surgeon Lieutenant-Commander (Lt) and transferred to the Portsmouth Liaison Appointment after 1949 (see later at RNM Chatham and at RNM Exeter) where friendships developed with officers of the USN Dental Corps enabled him many years later to obtain approval for an exchange of dental officers with the USN, an arrangement still in operation today.

Promoted Surgeon-Commander (Oxon) 1950 he returned to sea for a two year appointment on HMS Angle. This followed a period of training as a specialist at RNM Haslem, but he returned

to administrative duties after that on Assistant to the General Dentist in London. 1964 saw him back in a dental specialist at RNM Haslem. While in the rank of Surgeon Captain (Lt) in 1964 he became Commandant Dental Surgeon on the staff of C-in-C Portsmouth before in 1968 being promoted Surgeon Rear Admiral (R) and appointed Director Royal Dental Services. He became an Honorary Dental Surgeon at the Queen in 1968 and retired the CB on his retirement in October 1971.

Bill was personally a patient man who looked after dentistry. He had a deep concern and love of people, especially children, who after retiring he continued to provide dentistry for a further two years in the school dental service in a non-then house.

During the war when serving in Haslem, he met Mary whom he later married. They had three sons: John, Robin and Paul. The only Robin followed his father into dentistry. Bill and Mary lived for many years in Portsmouth, where after retirement, Bill gave his support to many local activities. He was for some years Chairman of St Andrew's Parish Church. Mary died in 1990 and after that life held little excitement for Bill. He moved to Farnfield and retired from active life. He died on 12 July 2002. His funeral in St Andrew's church was the occasion for many friends to pay their last respects. The Royal Naval, the Royal British Legion and a large number of Last Post and Reveille with all present. Bill was buried there in the cemetery alongside his dear wife Mary.

Surgeon Rear Admiral (R) A E Graham

Notice has been received of the deaths of Surgeon Captain Noel Goldsmith, Surgeon Captain Leslie Banks and Surgeon Captain Frank Francis Roy a Naval Reserve. Our condolences go to their families and friends. The wider world will have my words in memory of these.

Service News

Agreements on Climate Change in 2009

Podiatrist: M. Winger, Associates, Dr. B. S.
Hearst: Neurology: Simpson, Captain, Dr. B.
Lambert: Neurology: Gerald Fisher, Health: M. M.
Holtz: Plastic Surgery.

REFERRAL, PHYSICAL MEDICAL, AND PSYCHIAL EVALUATIONS

Acknowledgments: The authors thank the reviewers for their valuable comments.

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Sergeant-Commander D. P. F. Calvert
Rtd. in Uniform, London

Responsible: **Communications and Public Relations**
 Not Notified

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on Occupational Medicine

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 Surgeon Commander: R. Smith

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Jill M. Casanova, M.D., Boston

Dr. Margaret Charnick
1100 J. Watson, D. 200, Houston, TX 77030

Dr. Margaret C. Caputo
R. P. Sullivan, C. M. Goodrich, P. C. MacIntosh

[illegible]

Keywords: child sexual abuse; disclosure; social support

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Samuel John Lawrence, F.R.C. (Harvard) B.S.
 Deputy, Department of Law, University of A. M.
 Harvard, B.S. (Harvard)

1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2765 2766 2767 2768 2769 2770 2771 2772 2773 2774 2775 2776 2777 2778 2779 2780 2781 2782 2783 2784 2785 2786 2787 2788 2789 2790 2791 2792 2793 2794 2795 2796 2797 2798 2799 2800 2801 2802 2803 2804 2805 2806 2807 2808 2809 2810

Stephen L. Latham, B. M. Frazier
Stephen Latham, Commander R. R. Stolt
James, Commander J. R. Townsend

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Suzanne L. Benenante, S.M. College, F.M. Cooke
 A.J.R. Connick, A.M. Owen, C.B. Hadden
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 S.L. Lawrence, Acting, Gregory Lawrence, U.S. Navy
 M.C. O'Brien

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Sergeant Leonard Coleman (E 6)
 Armstrong D. E. Rogers, A. B. Gorman
 N. Gossard, M. F. Henry, R. A. Heston
 R. D. Hinchey, A. D. Kahan, S. J. Kahan,
 C. A. Perry, F. C. Rags, S. C. Ransom, R. J. Walker
 National Lieutenant Commander (E 7) G. Moore
 Sergeant Dominick D. P. Whitcomb

Planned On: Revised On: Approved On:

Harvey A. Karpman, M.D., M.P.H., Surgeon
General, U.S. Department of Health

Peter Wiseman, Surgeon Lieutenant Commander C O Smith was awarded the David Green Medal by the Association of Endoscopic Surgeons of Great Britain & Ireland for his three paper Laparoscopic Intestinal repair. Award of £400 prize.

MEDICAL SERVICES OFFICERS NEW ENTRIES

Sub Lieutenant M C Flynn, R. Mistry

PROMOTIONS

To Lieutenant

P H Barnes, M M Murrell
D C Scarborough, G A Todd

Placed on Retired List

Lieutenant Commander Lt Col C J McLaughlin
Commander E Baker

QUEEN ALEXANDRA'S ROYAL NAVAL NURSING SERVICE NEW ENTRIES

Lieutenant Commander E H Ford

PROMOTIONS

To Lieutenant

S E Quinby, A M Worburn

TRANSFER OF COMMISSIONS

SLIGHTLY SORED

Lieutenant D M Taylor

To Medium Career Commission

Lieutenant R A B Bagnall, A L Baint
S L Gough, A J Holmes, K A Hurley
V Johnson, J J Long, C N Moulder, M L Parry
Smith, J L D-Hewry, P E Simpson, G Turner

To FCC

Lieutenant Commander T W Ashworth
C J Roberts

ROYAL NAVAL RESERVE & QARNNERS

PROMOTIONS

To Surgeon Lieutenant Commander
M Rickard

To Acting Surgeon Commander
J P Swaine

NEW ENTRIES

Probationary Surgeon Sub-Lieutenant
R A Fenton

Surgeon Commander A E Davidson

QARNNERS

NEW ENTRY

Sub Lieutenant R P Hestonley

PROMOTIONS QARNNERS

To Lieutenant J A Maudslayi

Retirements & Resignations

Surgeon Captain N B J Harper
Surgeon Commander J M Norwood
(Transfer to RN)

Probationary Surgeon Lieutenant N B Taylor
QARNNERS

Lieutenant Commander E H Ford

As a member of the Transport and Forward Support Reserve Service QARNNERS, Chief Petty Officer Michael Ashworth has obtained his second a Commonwealth Letter of Commendation from the Royal Air Force Award Society for his part in their outstanding performance in boat handling skills, teamwork, techniques and medical care in all weather following the collision of two high powered speedboats in the Solent.



Reunion of Naval Medicine News

The second Charles Belmont Loomis was delivered to members of the Institute, the Worthington Company of Boston and some of Laid's dependents on the 25th April 1881 by Sir John Cassin. The subject, appropriately, in

the 25th anniversary year of the publication of Laid's treatise on Nerve was James Lind, the pioneer of prospective controlled clinical trials. Surgeon Vice Admiral Sir James Whit presented a charming Capetown figure to the Institute.

Administration Notices

Management Committee

Secretary: Captain J. de M. H. Bullock at two main sites: Embassy, Singapore Campus (Rt WR Lock, Singapore)
Campus D Brown, Comprehensive P. Roy, Campus M Brown (QARMS), Singapore Campus C P G
Barker, Commander H Marshall (Rtd), Lieutenant V. Matthews (Rtd), Dr R. J. Pridemore, the Editor's essential adviser has just retired.

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All manuscripts should be submitted to the Editor, JRMMS, Mission House, Institute of Naval Medicine, Admiralty House PO12 2DL. Each author must sign the covering letter as evidence of consent to publish. One author must be identified and confirmed to receive relevant copyright and to accept proof.

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Manuscripts for consideration may be submitted to the reviewing process. The Editor retains the customary right to style and, if necessary, to shorten material accepted for publication, to alter papers on subject matters or terminology and to suggest other revisions.

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Authorship should be based only on substantial contribution to the conception and design of analysis, and interpretation of data, and in the drafting the article or reviewing a critically the manuscript, and on the final approval of the version to be published. Contributors (1) do and (2) must all be met. Participation solely in the acquisition of funding or collection of data does not justify authorship. If required, author that produce the data upon which the manuscript is based for permission by the Editor.

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² Please enter the exact month as "for the month of"

Editorial Ramblings

By the time I started this note, Sir, I have had given a few responses to the questions I posed about the future of the journal in the previous page. One finds that enthusiasm in the first edition which others support the idea of making it less voluminous a year. Keep your proposals coming please.

I was invited by Commander Frank Reed to go to Edinburgh Harbour, the home of the Defence Medical Services Training Centre, to present the certificate to the Medical Association (Edinburgh) and see Royal Warrant who were giving out of training them, to go their final placements in ships and establishments. I had accepted the certificate as I had hoped to make my debut with me so he could not have things had changed since he moved on a few months ago in 1976. Also I was too late as the deal in September but I knew he would have been supported by the economy and efficiency of not only the MAF and their association but also the friends and parents of which had accepted visit appearance for them. I wish all the new MAF a successful and rewarding career.

There is a big celebration tonight the most recent activities of the Royal Naval Medical Service in the next few weeks. Surgeon Sir Admiral Ralph Day will be relieved as Medical Director General (Edinburgh) by the newly promoted Surgeon Rear Admiral Mike Phipps (Edinburgh) who himself will be relieved as Director of Medical Operations (Edinburgh) by Surgeon Commander Peter Taylor who joined the Defence Medical Services Department. Commander Frank Reed leaves Royal Edinburgh for the study depths of the MED. Surgeon Captain James Campbell has been awarded one of the West Country as others Surgeon Captain Laurel Jarvis as Commanding Officer of the MED (Edinburgh) (The Portsmouth / CD Royal Hospital Member of Port Blockhouse). Lord is still on trial in the Royal College of Defence Medicine from which signed (Edinburgh) both my self Surgeon Commander Philip Bellamy. Surgeon Captain Oliver Stewart leaves the Postgraduate Medical Academy in Birmingham to join RCMED. I discovered last to the Central Air & Admiralty Medical Board (CAAMB) for the day of some where, now for my final appointment as the Royal Navy. As part of my preparation for CAAMB I looked in for a two day interview on Civil Aviation Authority medical regulations in Orkney so I had asked the CAAMB to go up as a suspended candidate (as a candidate when seven plus years ago I was disallowed to land that time was for an examination on the aircraft - some serious pre control training was required). I was even more disconcerted by the need to produce my Diploma in Aviation Medicine. I could not remember anything a since 1972, not only when asked where the last place where we moved from Helicon in 1972 was not acceptable. Full of all sorts of carefully suggested suggestions I named my wife and myself by looking it in the full after only four hours searching time.

I cannot pretend that making this journal has been a bundle of laughs although the one it has been abundant. As most of you will have noticed over the last three years my contributions have been rather profile not profound and certainly not prize. I must pay tribute however to Commander Geoff Marshall Royal Navy (Edinburgh) the Honorary Publications Secretary (Edinburgh) for his wisdom where writing support this journal would not have survived. I also thank my regular and occasional contributors and correspondents and should Philip Bellamy decide to joining the list of the Defence Gazette, please give him your support.

(Edinburgh)

Nick Blacklock

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Fig. 11 Axial CT scan at level 11 (Transverse plane)



Fig. 12 Axial CT scan at level 12 (Transverse plane)

apex, involving segments V and VI and is directed right-sided, with haemorrhage in (Fig. 14a,b). The left lobe, was normal and the descending aorta was seen (not) and posterior, appeared unengaged. Medial fragments, were demonstrated as the left side being adjacent to the superior vena (Fig. 14c) in association with a fracture of the left distal wing and also in the left groin during the lateral view (Fig. 15).

Initial blood gas analysis on each delivered oxygen (litre) 60% showed a pH of 7.17 pO₂ 8.5 (normal 10-14) pCO₂ 45 (normal 37-47) kPa (normal 13-15) pO₂ 140 (normal 100-130) mmHg, base deficit of 10 mmol/L. Arterial oxygen saturation was haemoglobin 11 g/dL, haematocrit 0.37, platelets 151 000/mm³. Prothrombin Time (PT) 17.2 sec.

Fig. 13 Axial CT scan at level 13 (Transverse plane)

An Aquarius 1000 (a) long section, on two postulating apices (b) through base of the head with a normal brain (c) and (d) (Fig. 13). The right lobe, was normal and the descending aorta was seen (not) and posterior, appeared unengaged. Medial fragments, were demonstrated as the left side being adjacent to the superior vena (Fig. 14c) in association with a fracture of the left distal wing and also in the left groin during the lateral view (Fig. 15). Initial blood gas analysis (Fig. 14) showed a pH of 7.17 pO₂ 8.5 (normal 10-14) pCO₂ 45 (normal 37-47) kPa (normal 13-15) pO₂ 140 (normal 100-130) mmHg, base deficit of 10 mmol/L. Arterial oxygen saturation was haemoglobin 11 g/dL, haematocrit 0.37, platelets 151 000/mm³. Prothrombin Time (PT) 17.2 sec.

Subsequent to surgery, patient was intubated to normal and appeared fluid resuscitated with intravenous (IV) and (IV) with normal saline and intravenous (IV) with normal saline and intravenous (IV) with normal saline. The patient was intubated to normal and appeared fluid resuscitated with intravenous (IV) and (IV) with normal saline and intravenous (IV) with normal saline. The patient was intubated to normal and appeared fluid resuscitated with intravenous (IV) and (IV) with normal saline and intravenous (IV) with normal saline.



Fig. 14 Lateral view of the head (Fig. 14) is normal, additional view

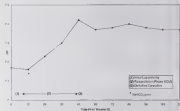


Fig. 19. Post-incident behavior following seizure.

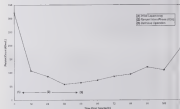


Fig. 20. Seizure behavior following seizure.



Fig. 4. Elevation in DVT following trauma

in 0.001mm³ and for the DME:CF corresponding to a PF of 25-5 seconds (range 10-40) and PTV matched DME 2 seconds (normal 24-36 seconds). There was a risk of decreased microvascular competence (DVC) evidenced by limited and delayed stability of packed platelets and Fresh Frozen Plasma. Haemoglobin fell on 6 April, by 24 hours despite blood transfusion, and the risk of re-epithelial bleeding was of major concern. Despite CF, there is almost no effective signs of ongoing haemorrhage or tissue injury, and continued adequacy of peritoneal dialysis (Fig. 4). A total of 11 signs of packed red blood cells, 16 units of FFP plus 10mg of Vitamin K, and 10 units of platelets were eventually required over the period of initial laparotomy and ICU consultation to protect (compensate) to permit and to maintain platelet count at a relatively safe level, indicated first to maintain a CF above 20mmHg, further improved haemodynamic function and perfusion recovery and later indicate the ultimate pulmonary function was improved to maintain a PVO, normal alveolar O₂ (A-PaO₂) and SaO₂ were both with PVO less than 0.04.

Forty-eight hours following the initial laparotomy, despite a suboptimal platelet count

of 54,000/mm³, the patient underwent second look laparotomy including removal of packs and movement of the liver injury. This was achieved uneventfully and some fibrinolysis was considered unnecessary. A small amount of bleeding from the capsule edges of the transverse liver was controlled with electrocautery then covered with powdered collagen (Cyanoacryl CF, first for Menstruacore, USA) and absorbable gelatin sponge (GelFoam® Pharmedix & Upjohn Co, Kalamazoo, USA). Gastrostomy allowed drainage to be placed above and below the liver despite two suction drains. Re-exploration of the remaining abdomen revealed no overlooked injuries and bilateral iliacs was achieved without difficulty.

Extensive pleural effusions and consolidation of the right middle lobe developed post-operatively but appeared, treated with antibiotic physiotherapy and early mobilization, gradually changed 10g/h generating successful resolution four days following the second laparotomy. Subsequent improvement in pulmonary and gastrointestinal function, nutritional status and mobility was excellent. There was a persistent lymph discharge from the

franchisement, or glying upon the stream with shocking necessity in open day. Three daughters of Cyrene are not only of manner peculiar, but likewise of such goodlier figure and apparel, that it were difficult, in any other part of England, to find a better maintenance of them.

Behold in yourself, or almost these modest countenances of the fair sex, wearing a being of more than Attic beauty, (being in order) countenances, embellished with all the effluencies of Cyrene confidence and beauty. One luscious lily just to her hold craves the waking in tears of one wounded cheek; a bonnet some scarred and battered brow, and a pair of blackened eyes, with deeply reddish lids, they add to her rules a pair of burning ears. In a countenance a Colonus, and within upon two sides that the least suggestion of a just, by way of apparel just upon her a little, by day up a man's black hat, a turn on her half some, rings on her fingers, and a shirt white or sandy, threaded green, with short apron, and a pink petticoat, thus will you have something very like the figure of *Jaques Fall of Perseus*.

My view to the dock, just was of a future highly gratifying. I contemplated the two depths of mercy, the great workshop of our navy, to the children of our nation's glory. I regarded each spot with all the enthusiastic veneration of a Roman priest of his country's greatness, that of the splendid and brave achievements of its defenders.

The light ship of war, lately taken from the French by Lord Boscawen, being in dock, we had the opportunity of going on board, to witness the repairs she had sustained from the shock of the attack. The shattered condition bespoke, in strong expression, the terrible effects of a close fought action at sea. But we were told that all the hull timber was now repaired, so that it was in every way, almost, after a battle, as if it is equally master of repairs that such vessels should be kept afloat, as thus they might ever have been constructed capable of withstanding the destructive fire of our iron-plated ships.

While examining the many wounds of the light, we were called up to view a specimen, the first made recent made by our gallant Admiral Cornwallis, which I have always thought did him infinite credit. Combined as it was, it had all the terms of a great victory, and I well remember that at the first moment of perusing the dispatch concerning it, I was surprised only a high sense of that officer's gallantry, and his value, and his that I should ever obtain the highest reward for his untimely death. To have defended an inferior fleet against such superior force, and to have brought every ship into port, against a dozen of superior combinations of ships, out of thirty vessels, which can only be found in a great commander. To have brought in the last sailing vessel, of the squadron would have been perfection; that to have, shipped others, with this, and carried the in within the harbor, in possession of the enemy's vessels, which they made the best of the worst, and which they did the while, was doubly honorable. It was great and bold, and worthy the leader of our brave and long renowned Marquis, whose high and well appreciated talents are so universally acknowledged, and so increased in splendor, by the humanity and benevolence of his nature. That two such distinguished commanders, in the different branches of our navy, should be found in the same family is no less honorable to themselves than gratifying to their country. Of such was England but just cause to be proud.

My visit to the dock, tonight was in keeping with that to the dock yard. Connected with our country's greatness, as I called upon a wonder-wrought ship, and I felt it no less to England that to within a continuous detail of our lives, but the confidence required in to learn. The work must be done by our navy, our navy the very vessels our work and wounded defenders, to provide, they were of that country, as before. It has long been said, and with great admiration, that French sailors are not only a bold but a peculiar race of beings. The fact is wrong, and although it were extremely difficult to show that that extraordinary character still stays to govern our ships, certainly, for there are a sort of it, as if they know only the name. Nothing so delights them as to be told how their country, and rather than to be regarded, they would endeavor to do it their part. That such men should be liberally recompensed in their sufferings, must be regarded as the wisest a reward, of every Nation, and to know that they are so, is tributary to the feelings of all who are sensible of their value. It is due to their courage and bravery, and is demanded from their country's gratitude.

The Hecla is admirably calculated for the important purpose. The establishment is liberal and

2. *Scott* met at *Perseus* (Scott was a popular writer in the 1790s, appearing in a couple of Thomas St. John's columns) on the 10th day.

History

RN Medical School at Clevedon



Lieutenant Brown while visiting a friend in the workshop of the playhouse

On 11 July 2003 the Clevedon Civic Society unveiled a blue plaque in Loughborough, 2 Miles Road, Clevedon to commemorate the people who produced porcelain there during the Second World War. The first Road was part of the

RN Medical School, the first time a production and a period of porcelain production.

The Institute of Naval Medicine, was opened at the ceremony by Lieutenant Paul Martin, secretary to the Medical Officer in Charge.

History

A letter to the Times of Malta 11 October 2003 from Colonel Ethelwald Emilius Vella MD FRCPATH L/RAMC

Painless Surgical Operations

I have attended this year's annual meeting of the European Society of Regional Anaesthesia (ESRA) hosted recently by Malta. Such an international scientific (professional) event is possible in the middle of our island and does much to promote Malta, drawing in the attention of the outside world. Indeed it otherwise is a convenient and desirable venue for international scientific, technical conferences, conventions and scientific gatherings.

It is hoped that some of the medical operations or procedures displayed this evening had the opportunity to visit the Upper Barraka Gardens where they would have enjoyed the wonderful panoramic view of Grand Harbour. From that vantage point they would have been facing the famous civil hospital at Bgħet il-Grova in the crown of the Royal Navy medical services attending the formidable British Mediterranean fleet fleet.

It is now common knowledge that it was here that it began, the very first operation under general anaesthesia, on 16th May 1847 and the outside world occurred only a few months after the very first successful public demonstration of a surgical operation without the inevitable anaesthetic pain control sets on October 16 1846 at the Manchester General Hospital in the USA.

The Times reader will readily and satisfactorily without much difficulty appreciate that this was a great day dawned in Modern surgical practice. Using the inhibition of pain and rendering the patient unconscious was a surgical means of taking away an excruciating pre-operative fear and the successful outcome came from the rough and ready but necessary surgical approach of those days.

The naval surgeons who administered the ether anaesthetic and so demonstrated the procedure were critical of anything a civilian patient particularly but equally unconscious was anaesthetized. Thomas Spencer Wyle, who then proceeded further and gave a public demonstration of his method of ether anaesthesia for surgical operations on March 16, 1847.

It is said that he spoke in Italian (1) and furthermore he invited those attending his demonstration to try the effects of ether anaesthesia on themselves. (2) Two Maltese doctors volunteered to do just that (3).

Coming in third is it perhaps the University of Malta Medical School surgeons may probably put up a successful plaque in commemoration both the unknown in local medical practice and the demonstration the outside and most fully known surgeon Thomas Wyle at Malta. And any surgeon on any operating room (operating table) (4).

In England, I believe, the checking of operations on medical science, does not often form the subject of public inquiry. It is then that checking the latest works of truth are checked, and a general stimulus to pursuit of research is thereby created."

Daughter Life and Obstacles to and against a new the science and treatment of the illness in Britain from its dawn to now (1) First London printed for Murray, Haynes and Son. By the Philadelphia, Society. 1815. Preface p. 10.

Training & Travel

MedSTAR Trauma Elective Washington DC

March/April 2003

Jayne McKinley

Background

Only a hole US history, the new US government realised quickly that independence meant little without a place to stay. Both soldiers and workers were denied the capital in their last. The final location, 100 square miles, stretched from Maryland and Virginia was a compromise on undeveloped swamp wedged between north and south. Congress commissioned French engineer Pierre L'Enfant to draw the city.

Washington's wide avenues remained mostly empty until a collection of three houses and boarding houses for only companies for the elegant government buildings. The city had barely begun to expand when the first election took place in 1792. A great war was just up and over the capital failed as Congress for five years until the arrival of the stars made after the war was transferred Washington from the Union's embarrassing capital to its capital city.

The diverse class of Federal Washington and local Washington consist of the diverse Federal Washington, the town of poor confederate, poor families and professional workers, a white and black to color to see. The other part of Washington the Dalrymple, consists of a variety of communities: some poor, some rich, some moving by poverty, drugs and crime. There are, however, within the blocks of the town of government, corporate and military with the working suburbs of American democracy. For the population of this town that are mostly white, are parents through the doors of MedSTAR in the perimeter.

MedSTAR

Medical Staff Trauma and Acute Response is a department within the Washington Hospital Center on the North Two-Way border of the capital. There are five days for training staff, income parents. Parents are frequently

transferred here as MedSTAR is a local trauma center for a few, a 24 hour service, with all surgical specialties available. It is supported by several emergency medical services, ambulances and MedSTAR helicopters staffed by trained paramedics/paramedics care centers. Trauma is the US's a surgical specialty at its own right. The MedSTAR department is staffed by three, seven (A, B & C) comprising a chief, two paramedics (PMB/EMTs) and up to three medical students who immediately enter into either they are converted by a team of students (internship). The medical students are there (Group) most times 1 week, and are called by the trauma team as well as on call. It can be a very taxing department to work in with multiple trauma trauma presenting at one time.

Choosing MedSTAR

Harvard Medical School, reviewer of choice, is an experienced medical center in the Royal Navy which offers several classes and MedSTAR. Students are set up through direct liaisons in Washington DC, this also applies to the certification (see later). The classes are available for two military personnel though including the accommodations apply to.

Cory Tower, Graduate Medical Education Office, Washington Hospital Center, 110 Irving St NW, Washington DC 20010-2005

The costs are higher to the US are around £150 per day (Giles International 1800 accommodations in Clinical Apartments, £14 for dinner that you get \$15 food vouchers on return). The cost was approximately £100, as in UK.

Accommodations

Our accommodations are in apartments in The Clarendon Luxury Apartments. The flat was pleasant with all modern. Two beds rooms and

a lot of a sweet before here. Early night before tomorrow on call.

Day 8 - 1873

Left at 0600 to check my five patients before we get round at daybreak. There are lots of rounds for a married team? Filled the charts, listened and flow charts (oh, charts) and notes (spoon) now at the SOAP rounds, first, algorithm assessment and plan before. Physicist in the morning took off to the house on the life and times of the patients? After that, reading material before, in the morning, a student from the WBC who passed away in September 2002. There is a study disciplinary meeting. There are some records that patient follow up until the house call at 1500. Continued with the MacSTAR until 4am? Several EPOCs and one, continuing patient record, although a final round and lateral CXR. Check down their notes. I have sleep in my bagged room then.

Day 8 - 1883

Still up to check five night patients before, around a round. One student and one student in the afternoon (hospital) from outside, are before. There are some records, reading rounds, plus MacSTAR, emergency response with more jobs than finally found for three more sleep. Checked into every there and for a few hours?

Day 7 - 1893

They day at work with usual rounds, three emergency and monthly round round. This is where the students go to the charts, in whether they would have done anything different with their patients if they had the time again. From last year, and recorded by hospital administration. Amazingly finished quite early and went to the cinema to watch. That's from the unit. And apple pie and a milk at the Clinic when round. Wait for a while for a glass. Nurses returned before at early night.

Day 8/9 - 1903

On call today (Pawnee on the gas, from outside, in the afternoon before the no interest studies. From, nothing - we all got to practice the meeting? Also, then, about day-long rounds, which were previous here. Unfortunately, there came in to from the state I hope we had, and after last off of the, Columbia up-round. Then, that a few hours sleep. Although morning after that was the most the patient, was held up at hospital, not to see



Fig. 1. (continued from p. 67)

appet. We all went on the night, first a great check, most at 2000 on Daycare Unit. Then, next up with, Anne's team, a few more, they working on the morning, too. This is night one in Lark's first month at Georgetown, the first time.

Day 10 - 1913

Yeh a little rough today?!! Defen get my breakfast, with usual and afternoon? Morning around on papers, then off to Clinic, news for clinic at 10am, an hour plus. Round, and round there before for the night.



Fig. 2. (continued from p. 67)

Day 11/92 - 24/9/93

Had shift today to push us up tonight. Back to work, had to do the first, which I managed to screw up. Then retake with ideal. Then standing rounds then lecture on head injuries. Finally ended MR CPP-MAP EP.

Five jobs then a lap in anticipation of call tonight. Lots of casual 2200hrs then patients on MVA, phosono bands. Admittedly well used from cerebral level of understanding more. One (1980s) CT at old with 18-GSW. Miss noted up in therapy from 0700 to 0730. Then have lecture and read story - answer lecture. Then MDT meeting. Ward round then home for some 2230 in the unit of lecture. Puts this away and "Coping" book.

Day 12 - 26/9

Ward rounds then there. As a new lecture on CT scans & other stuff. Then half day after a previous.

Day 14 - 27/9

On call again today. The unit is there in your hand work. But there were rounds including a fully educational one from Dr Scott (neurosurgeon) from Ward jobs on patients and others. Henderson (see above) let up on one poor guy who turned up to get a bullet wound of without any discussion. Saw a lady with burns and trauma post polio case. Went to educational lecture, had tea, story that patient was off. This was the worst of the, though night yet. Constant influx of patients all night. At one point Henderson, Scott and Jones were doing an on bay thermometry and internal cardiac. Missing on an eventually dead GSW patient when two more (poorly injured) patients turned up when all the boys (they were already full) and we had patients in the corridor. CRASH 24/9/93. We patients were one (poor) GSW, no planned better one MVA. About 100000 of the David Smith with bilateral orbital.

Day 15 - 28/9

Half day. 1st night patients work up. MORTAR, closed to patients two times last night. 12 admissions, one death, seven admissions in theatre two to order one discharged. Mortality and morbidity meeting open. Also took part in meeting. Decreased efficacy of all my chemotherapy (patients later 24000 in therapy with 17 patients). Saying that we were here and able for not performing.



At first, the patient's face.

then up. Long patches were put, hospital on. Then patient's wife with Dr. Alan. Alan is, had in old history on chest pump. Then (Chen) excellent. Finally home to bed after 11.10. Had? Sleep then out to Diogenes circle for patients - and drinks on a day too.

Day 14 - 29/9

Plan SMOOTHER SMOOTHER SMOOTHER in Potomac, Mello/1776 digital screen and several heavy bags into. Initial again on the bus. The boy down in the first floor. SMOOTHER died before bed.

Day 15 - 30/9

0700 start. Started with last page, straight away. In theatre, surgery. Splenic perforation revealed on-site grocery store. Had last on before 11. Spent the night then, before work.



Right



Left



Figure 27

Fig 27- 104

W.H. at 0700. He says friends at the morning. Very concerned with the fact. Ministry might not for Malawi. Includes details on Chyler and details in Kibera in Georgetown.

Fig 28- 104

Painful with the one? My state verbal patient. He and HCT had been to play for discharge tomorrow. Rounded on patients with about a 10% that were broken. They suffered some trouble.

Fig 29- 114

Love Day? Daily create that had a full strength over. Some guy in the hospital described jumped

in front of a sign from Mass hospital. Unfortunately had to leave to check out of hospital. Alagabary mentioned experience.

Case Report

A patient. All what was, although under the same FC.



This unfortunately was a little typical patient. I had the opportunity to follow him from the night to the discharge subsequent to discharge.

Journal: John G. Gossard, J. G. Gossard, W. G. Gossard, University and the University of Cambridge.

"As a mental and bodily gymnast during the long before hours of silence, that Gossard, led to the lot of silence in the early and late, more particularly in the late children. He is to perhaps nothing equal to the modern period of natural science."

Hand copy of a manuscript on the subject of the Gossard, and Gossard, J. by Andrew Lamb. Author: H. G. Gossard, 224 Regent, Edinburgh. Introduction and Gossard, 1817, p. 1.

By editor: In Gossard, was associated with Gossard PT.

Summary of Income and

The Washington Capital Center

Year Acquired - 12/31/79

Page 1

SIC Code - 6721

Date of Acquisition - 12/31/79

Federal EIN - 52-0810100

Filing Status - SEPARATE

Name

City - WDC

Age - 10 Years

St - Washington

Year - 1

Acquiring Interest - 100%

Acquired Date - 12/31/79

Name - Washington Capital Center

Last Name - WDC

Name - WDC Capital Center

Last Federal Return

SIC Type - 67

In SIC - 6721

Name of Asset

SIC - 6721 (SIC) - 6721 (SIC) - 6721 (SIC) - 6721 (SIC) - 6721 (SIC)

Address

Address - 1000 10th St NW, WDC 20001

Last Federal Return

SIC Type - 67

SIC Type - 6721

SIC Type - 6721 (SIC) - 6721 (SIC) - 6721 (SIC)

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11. **What is the purpose of the "References" section in a research paper?**
 The purpose of the "References" section is to provide a list of the sources of information used in the research paper. It allows readers to locate the original sources and verify the information presented in the paper.

Figure 11

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

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NAVY Medical COMPASSIONATE FUND

The *Journal* will not use its editorial boards as the authors and editors of *Journal of Management Education*.

Excessive use of d-Mann is possible. For the latest info, visit our website!

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

The Absent Center

1. **Identify the subject and predicate.** The subject is "The committee" and the predicate is "has decided."

Figure 1 consists of four histograms arranged in a 2x2 grid. Each histogram shows the frequency of the number of non-zero elements in the first column of the matrix A. The x-axis for all histograms is 'Number of non-zero elements' ranging from 0 to 10. The y-axis is 'Frequency' ranging from 0 to 10. The four histograms correspond to different values of n: n=10 (top-left), n=20 (top-right), n=30 (bottom-left), and n=40 (bottom-right). As n increases, the distribution of non-zero elements becomes more concentrated around 10, with the frequency of 10 non-zero elements increasing significantly.

High-Speed Railways: Europe

Received 10 May 2006; accepted 12 July 2006

0068

The next Annual General Meeting of the MRCF will be at the Sargren River Admiral's Residence in Royal Weymouth Harbour on 10th May 2004 at 10.00

Summary of Isotopes Data

Transportation Report

Report generated on 05/04/2000
 From: TRANSPORT
 To: 001

	Isotopes	Q
	Amount	Value
TOTAL TONNAGE	1.71	200.0
CONTAINER AND TANK CAPACITY		
Tonnage	80	80.0
Volume	80	80.0
TYPE OF TANK		
Bulk	1.0	80.0
Pressurized	0.0	0.0
Non-press	0	0.0
CONTAINER TYPE		
Tank	1.00	10.0
Box	0	0.0
Non-press	0.0	0.0
TYPE OF MATERIAL		
Radioactive	1.0	80.0
Chemical	1.00	10.0
Other	0.0	0.0
TYPE OF TANK		
Radioactive	1.0	80.0
Chemical	0	0.0
Other	0	0.0
Pressurized	0	0.0
Non-press	0.0	0.0
Box	0	0.0
Tank	1.00	10.0
Other	0	0.0
CONTAINER TYPE		
Radioactive	1.00	10.0
Chemical	0	0.0
Other	0	0.0
Pressurized	0	0.0
Non-press	0.0	0.0
Box	0	0.0
Tank	1.00	10.0
Other	0	0.0
CONTAINER TYPE		
Radioactive	1.00	10.0
Chemical	0	0.0
Other	0	0.0
Pressurized	0	0.0
Non-press	0.0	0.0
Box	0	0.0
Tank	1.00	10.0
Other	0	0.0
CONTAINER TYPE		
Radioactive	1.00	10.0
Chemical	0	0.0
Other	0	0.0
Pressurized	0	0.0
Non-press	0.0	0.0
Box	0	0.0
Tank	1.00	10.0
Other	0	0.0

Demographic Report

Page 1

	Number Truants	% Truants	Mean Days	Std. Dev. Days
AGE (YR)				
< 10	3	0.1	10.2	0.0
10-15 and < 20	121	41.6	11.2	11.4
16-18	85	29.7	10.2	10.4
not all rec	2	0.6	—	—

RACE/ETHNIC GROUP

OR OR ANCESTRY

unknown	119	41.4	0.0	1.0
unavailable	10	3.5	—	—

RACE/ETHNIC GROUP

unknown	119	41.4	2	1.1
unavailable	10	3.5	—	—

Demographic Report

Page 2

	Number Truants	% Truants
EDUCATION		
< 10	5	1.7
10-15 and < 1	0	0.0
16-18 and < 1	0	0.0
19-20 and < 1	1	0.3
21-25 and < 1	0	0.0
26-30 and < 1	1	0.3
31-35 and < 1	0	0.0
36-40 and < 1	0	0.0
41-45 and < 1	2	0.7
46-50 and < 1	1	0.3
51-55	66	23.1
unknown	70	24.4

RACE/ETHNIC GROUP

01-04	74	26.0
05-10	25	8.6
11-15	26	9.1
16-20	—	—
21-25	0	0.0
26-30	0	0.0
31-35	0	0.0
36-40	0	0.0
41-45	0	0.0
46-50	0	0.0
51-55	0	0.0
unknown	10	3.5

Training

The Operating Department Practitioner (ODP) – Educational And Professional Developments

Richard R Patton



Main entrance to the Faculty of Health & Community Care at the University of Central England (UCE)

Introduction

The ODP profession is currently going through a time of development both professionally and educationally and this paper has been formulated to inform members of the Royal Naval Medical Society (RNMS) of these developments, especially those within the Department of ODP Education formerly the Training School ODP. It is intended to provide the reader with detailed information

on the recently launched ODP qualification and the required entry criteria. It also aims to provide an introduction into the development leading to the ODP Professional Register and also information on post qualifying studies available for the ODP and the RNMS member.

Department of ODP Education

Formerly the role of the School has been changed due to an relocation in September 2001 and now position within the University of Central England (UCE) in Birmingham, as part of the Centre for Distance Education (CDE) module

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the Department of ODP Education is now part of the Delaware School of Health Care Studies, in the Faculty of Health and Community Care (HCC).

The original role of this department went to those who ODP training locations from all three Services were brought together in 1994 following their individual closure. The Faculty was formed in the Health Studies Division (HSD) and later part of the Royal Holloway Medical College (RHMC) in Egham, Surrey. The qualifications received by students attending ODP training at that time were the National Vocational Qualification in Dental Office, an Operating Department Practitioner (two years) and a two year course when students received theoretical training in FRCR, delivered by the ODP training staff and practical experience of non-instrumental placements conducted either in a Service facility or a National Health Service (NHS) Hospital.

Dep HSE in ODP

In March 2001 the Association of Operating Department Practitioners (AODP) was recognised by the Department of Health (DoH) as the body responsible for the regulation and self-regulation of the Operating Department Practitioner (ODP) and also to have with the profession's formal application for status, recognition there was a requirement to develop a Diploma in Higher Education (Dep HE) level qualification for all practitioners in Operating Department Practice. With the formation of the Health Professions Council (HPC) in September 2001 the AODP expressed its intent for all future ODP education courses to recognise their Dep HE programme in the September 2002 Session and the current NVQ qualification will not be eligible for recognition with AODP post September 02.

As part of the course of the RHMC in the UKO in Egham, Surrey, provision was included for the development and delivery of ODP education facilitated by the HCC.

The De Service ODP Training School had been working on the development of a Dep HE in ODP since it was proposed and the Dep HE in ODP was finally launched by the HCC in 4 June 2001. This development was one of the first in the country to do this.

Course Detail¹

The new Dep HE in ODP course is two years in duration and has been designed to enable student Operating Department Practitioners to gain a qualification that makes them eligible for access

to the Post-graduate Diploma. The programme is student centred allowing individuals to bring their own unique personalities, beliefs and experiences into a framework of progressive development. Learning opportunities will be encouraged for the student, facilitated by tutors and clinicians.

The Dep HE course reflects a contemporary perspective to ensure flexibility of the ODP within the evolving health care setting. It also focuses on a holistic rational approach that enables ODPs to be able to contribute fully to care delivery in a dynamic service. The course places equal weight on learning in class, of and educational settings and the acquisition of knowledge and practice informed this approach. The professional programme addresses development in health care delivery clinical practice and education and therefore needs to be integrated and dynamic.

The essential nature of study in year one is grounded in the development of key skills (skills for practice, an understanding and support role). At this level the underlying content is related to the capacity of students to comprehend, understand the situation and support of an already qualified practitioner and begin to prepare for the nature of assessment and planning of care. This level of practice provides a basis for the development of more operational practice skills in year two.

The modules in year one are designed to provide students with a range of practice skills considered to be essential for practice in the ever changing world of health care. Modules were also provided to help the students understand the role of ODPs and the growth of the discipline within the prevailing health care system.

Year two is expected around the professional content of skills and the adaptability of knowledge to various specialist situations. The students will be required to progress their skills in assessment and planning of care and develop decision making, management and evaluation skills within the specialist operations. During this level new students will also be required to demonstrate their capacity to respond to changes in health care needs and practice.

To be successful the student must not only receive and adapt their practice but also continually maintain their competence. As a member of key points throughout the programme the student is required to be aware of further progress and assess further level of competence. The student is provided with clinical

learning will also aid the process by providing comprehensive and accessible resources.

Outline of the BSc Route

The Dip HE Route, is specifically designed to provide the successful student with the skills, knowledge, and understanding necessary to perform as a Registered GNP. It is a consequence of the Professional Contract that the student is able to provide evidence of a minimum of 5000 defined hours, with a balance between theory and practice, by the end of the programme. In order to meet these requirements, during the education blocks within the University students will follow a c. 30 hour week and during clinical placements a 37-hour week is required. As this route leads to a qualification eligible for professional registration, all modules are compulsory.

Students will be awarded accreditation points for each module (12 per single module). On successful completion of Year 1 they will be awarded 120 points at level one. On successful completion of Year 2 they will be awarded 120 points at level two.

Level One (Year One)

Module Title
Int. education/personal and professional development
Ph. primary education - assessment
Intensive study strategy (Health module)
Pharmacology module
Principles of anatomy
Principles of physiology (Health module)
Pharmacology case study day
Principles of pharmacology

Level Two (Year Two)

Module Title
Int. education module
Pharmacology/primary education module
Integrated assessment year (the other module)
Pharmacology and professional development module
Pharmacology case study module
Pharmacology module
Intensive study

Progression Regulations

To be eligible for progression from year 1 to



The Work Operating Theatre - one of the practical environments at the Department of GNP

year 2, students undertaking the Dip HE Route must have:

- Successfully completed all modules undertaken within year 1 and thereby have been awarded a minimum total of 120 credits at level 1
- Successfully completed all the requirements for the assessment of practice at the required level in all placements undertaken within year 1 as specified in the programme plan.

The relevant competencies, specific to each module have been identified and form the basis for the assessment of the students in practice. Students are required to demonstrate the progressive achievement of practical outcomes throughout the programme. Their development towards the achievement of their outcomes will be assessed in the clinical areas as an increasing level of competency over the duration of the programme.

Entry Criteria

Details of entry criteria for the Dip HE, welcome board, direct, and course substitution route, are provided in GNC 18 2600 dated 22 Feb 02. For the benefit of anyone that has not had sight of this GNC details of the entry criteria for the Dip HE to GNP are as follows:

Dip HE to GNP (Three year course)

Entry criteria as per UCL Regulation G6.1
 1. degree or at level equivalent by pass (grade C or above) in three other subjects at GCEAL (or equivalent) or GCE O level grade C or above (GCE grade 1)

Equivalent alternatives:

- Acceptable passes of GCE A level/IB level/BCCSE/NE/Grade 1 passes e.g. 4 GCE subjects at which 3 are at Advanced level or passes in three subjects at A level or which are at Oxford School
- Scottish Certificate of Education: 3 passes of which three are Higher grade or pass at four subjects, all at Higher grade
- Two Advanced Highers/any 1 A/any 3 passes, an equivalent to two A level pass - 4 AS passes may be offered in lieu of 2 A level passes

Vocational Alternatives, Which May be Acceptable for Entry Purpose:

- BTEC National Certificate/Diploma regarded as equivalent to 2 A level passes
- SCITTVM: modular Award National Certificate scheme
- GNVQ at Advanced level: generally regarded as equivalent to 2 A level passes
- An appropriate range of NVQs at Levels 3 and 4 may be considered suitable for entry

Other Qualifications

- Other programmes which may demonstrate the candidate's attainment and abilities
- Open University programmes
- Access programmes specially designed for preparation for study at higher education level
- A full time foundation programme in Art and Design of not less than one year's duration normally together with the equivalent of 3 GCSEs
- The University of Wales, Diploma in General Studies in College Studies
- The London Chamber of Commerce and Industry qualifications at levels 2 and 3 are deemed to be equivalent to GCSE and A level respectively

Further Qualifications

- The International Baccalaureate and European Baccalaureate are acceptable as group qualifications satisfying general entrance requirements
- The Advanced International Certificate of Education awarded by the University of Cambridge Local Examinations Syndicate
- Other external qualifications will need to be approved on their merits

Candidates who fail to meet these criteria may request admission to the Dip HE programme by means of the following:

- Candidates must produce a Personal

Development Portfolio (PDF) to demonstrate their ability to study and learn within an educational setting, vocational context or the required academic level

- Applicants are provided up to the basis of their experience and capacity to benefit from the course in which cover a wide range of indicators will be assessed including evidence of previous study and educational attainment, relevant work experience, references, reports and records for training, to join the course
- Evidence may be submitted on the basis of recognised learning and experience, this involves assessing the applicant's knowledge, skills and competence in relation to the demands of a particular programme
- The PDF must read to be forwarded to the Chair/Deputy for consideration. Help in producing a PDF can be gained from the Personal Development Course, a UCC on paper or participation

If a candidate has an ongoing program for immediate entry into the Diploma, access can be made via the Foundation Programme

Outline of the Foundation Programme*

Students without the required academic entry requirements for the Dip HE Route will be required to undertake the Foundation Programme (FP) which is specifically designed to develop the academic skills to enable them to progress to the higher studies required within the professional programme. There are no clinical placements within the programme, therefore students are full time within the University on the basis of 11 study hours per week. The programme aims to develop understanding of mathematical skills, communication verbal and non-verbal and basic sciences and then to provide the opportunity for this to be applied into practice. All modules are compulsory. Students will be awarded accreditation points for each module. 12 per single module and on successful completion of the FP will be awarded 60 points at level one

Entry Criteria

- Due to the first three month programme, that is expected to develop the academic ability to study up to A level stage will be a minimum academic entry criteria requirement of 3 GCSEs (one in English one in Mathematics and a Science subject) or a recognised equivalent

Candidates who fail to pass the course may require intervention in the Foundation Programme by means of the following:

- Candidates must produce a Personal Development Portfolio (PDP) to demonstrate their ability to learn within a rotational and/or rotational course in order to pass entry to the Foundation course
- Applicants will be assessed on the basis of their experience and capacity to benefit from the course. In such cases, a wide range of subjects will be assessed, including evidence of previous study and educational attainment, research work, research skills, or, if appropriate, evidence for ability to plan the course
- Evidence may be obtained on the basis of an educational training and experience that involves increasing the applicant's knowledge, skills and competences, in relation to the demands of a particular programme
- The PDP would need to be forwarded to the Career Discussion for consideration. Help in producing a PDP can be gained from the Personal Development Centre at UCL
- Successful completion of the Foundation programme is required before being allowed to progress onto the Day 182 course. Candidates failing to successfully complete the Foundation programme will be removed from training on successful completion of university registration and current RCGP procedures

Selection Boards and Course Dates

Selection boards are held twice a year at the UCL, one in March and November of each year. The board consists of the Head of Military GEP Education, a Royal Naval representative, a Clinical Specialist and one of the Day 182 or GEP Royal Doctors. The interview takes place on the morning and following lunch the candidates are given a guided tour of the campus and facilities.

The Day 182 courses start in February and September each year and as mentioned earlier in this report, continue year on year. The two-month Foundation course commences in May and September of each year.

Joint Department

When the education of the Department at Southampton was initially considered about three years ago, it was highlighted that there was already a close liaison between Department of GEP Education located within the University of Southampton Hospital Trust (UHS) and Selby Oak.

The relationship at that time was responsible for providing GEP education for the West Midlands and neighbouring counties. It was felt that having two GEP educational facilities, in close proximity there could be a conflict of interest, especially with regard to clinically placing GEP students from either school. Therefore, it was agreed that an understanding between the two schools would need to be achieved in order to balance the various requirements. The Department of GEP Education for the UHS relocated to the UCL site in April 2001 to form a joint department within the Defence School of Health Care Studies in the Faculty of Health and Community Care.

The establishment of the two schools produced the creation of a new post within the faculty, the Head of GEP Division. This person now has overall responsibility for the management of the joint organisation. The remainder of the staff consists of 8 Military (including 6 GEP) and 1 civilian Clinical Tutor, and in time it is expected that this latter group will increase to accommodate demand.

Student numbers

From the Day 182 in GEP training site being run jointly with our civilian counterparts, similar to those in Military, classes consist of both Medical and civilian students. Currently there are 7 cohorts of students undergoing GEP education with a fourth cohort commencing in September 2021. These cohorts consist of a total of 181 students with 71 of them being Military (12 RM, 4 Army and 5 RAF). With two academic years and a maximum capacity of 90 students per cohort, it is possible that this department could have a total 360 students at any one time.

Other Courses currently available at the Dept of GEP Education

• *Advanced Diploma in Clinical Practice*

Again from the Day 182, and Education can offer the Department's students, at shortening notice, offer a number of other courses to Service and civilian Health Care Personnel. With the course into Higher Education (HE) and part of the education being delivered at Selby, it provides the means of progression and membership of the students, has supported ongoing Previous courses such as the 04021-14 and the 0405 190 have been replaced with a new day Level 3 course entitled Preparation for Assessment. This course is offered to all personnel who are involved directly with the training and assessment of Day 182 or GEP students.

• **Existing Techniques**

Two existing techniques¹ remain in, also available one hour course which is 2 1/2 days in duration which offers students the opportunity to learn the basic skills in plaster application and the associated risks in their function. A new materials course module is provided with information into the types of fracture, their complexity and areas hospital visiting visit. Multidisciplinary Professionals who encourage application of basic facts are encouraged to attend.

The second course is the existing independent course. An intensive 3 week full time British Orthopaedic Association (BOA) approved course. It is designed to enable participants to acquire develop the skills required for successful application of a range of simple and complex orthopaedic casts. At the end of the course candidates sit two examinations with internal questions, one practical session and one viva. Successful candidates will be awarded the BOA/BOA Orthopaedic Certificate in Casting Techniques.



Casting Techniques workshop

• **Current under development**

• **First Departmental Day 1/2 in ODP**

Now the Day 1/2 in ODP has supported the NVQ Level 3. Addition of the NVQ is to know whether it would be beneficial to access a Post Reg course. The aim is to offer what might be seen as professional qualification that is recognised by the Professional Body has been awarded and it is being recognised. It is being recognised to undertake any further course which offers such award a similar benefit. The

only benefit gained by anyone taking this route would be as an introduction to fill and the academic purposes involved in a working environment etc. Although the Department has not yet developed a Post-Reg Day 1/2 work is underway to progress this.

• **First International Qualification Course**

The National Association of Academics in Surgical Practice (NAASP) have been working together with the Royal College of Surgeons of England (RCS), the Royal College of Nursing (RCN), A&P and the National Association of Theatrical Nurses, is putting together a course curriculum for Academics in Surgical Practice courses. This primary aim has been to ensure that all Academics in Surgical Practice achieve a common standard of core training, and that patient safety is maintained. It is expected that the curriculum will be available from September 2001 and the department is integrating its programme along with other interested staff in the UCE.

• **New Medical Qualified Academics**

Another extended role for the ODP exists in the early stages of development in the New Medical Qualified Academics (NMQA). This new role would allow the NMQA to undertake activities under the supervision of a qualified practitioner similar to that of the Nurse Academics in America and the ODP Tech standards in the Netherlands. A central pilot is currently underway and we are being being shown around the course to explore the role and work towards formulating a national curriculum. Current parties interested in this area of development are the Changing Workforce Programme (PWS Modernisation Agency), the Department of Health, the Royal College of Academics, the Association of Academics, the Association of Operating Department Practitioners, the Royal Academy, and Recovery Nurses Association and the National Association of Theatrical Nurses.

• **Course and Employment Opportunities**

The role of the ODP is a challenging and demanding one working not only within the operating theatre environment but also in other clinical areas such as Intensive Care, High Acute Care Intensive Department and Patient Rooms. A variety of short and long term roles are available for the ODP ODP either a role of the two NMQA in Postgraduate and Pharmacy or an Armed Forces AMT (Armed Medical Technician). There is also the opportunity to

Book Reviews

Book Statistics and Epidemiology (a practical guide). Anthony Stewart. Abingdon: Baillière Medical Press 1991. ISBN 1 85196 588 4. Pp 120. £24.95.

Having statistics during my lifetime a number of successful attempts to be educated in what seemed to me the arcane world of statistics, I would have greatly appreciated a simple, useful, immediately testable book. As such, this book should have been readable, clear (it is filled in an alternative power of book statistics and epidemiology to those already on the market and is intended as people who want to understand the data points with a minimum of fuss) including, according to the publisher, every doctor, nurse, health manager, researcher and student.

The book covers aspects of population and sample, descriptive statistics, statistical inference, probability, standard deviation, application, tests, standard epidemiological methods (including RCTs) and concepts such as bias, confounding and screening. The material is structured in a way that chapters are not much more than one page each in the case of statistical methods in a cookbook fashion. This concise approach manages to be effective for some of the topics covered such as calculating confidence intervals, and epidemiological measures such as screening and relative risk, and partially so for others such as the formal discussion and screening criteria the outline of all of the UK National Screening Committee criteria is to be commended; however for too many topics the pursuit of having procedures adequate coverage of the conceptual basis of statistics and statistical method, an understanding I consider to be an integral element in learning the subject.

The concise approach to the statistical methods concepts and for some topics, epidemiology. For example, the number of variables for two groups (population) is stated as a rule without explaining that the same time period has to be applied to the two populations and the chapter on screening is greatly diminished by lack of detailed discussion. The implications of evaluating the accuracy of screening tests is addressed but does

in no attempt to put this into the context of concepts, in particular the effect that the prevalence of a disease has on the number of false negatives and positive tests of which have consequences in the RCT and for those screened and on the second for follow up screens to which they return. Little is said for a book intended for the Primary care, although applying to much of the data used in health and health services measurement and research is printed in italics only.

A worthwhile companion of the book is the exercises in Appendix 1. The exercises should be worked through by carefully approaching the subjects of this book for the first time and are challenging enough to be used for self or assessment of them with greater experience and knowledge.

The author's publisher states that 'the achievement of too much detail and too many theories in a single objective' will in fact, it seems, be a more conceptual and factual aspect. The writing is in fact, remarkably descriptive and the order of subjects facilitating, for example, the chapters on presentation and manipulation of data precede the chapter on types of data before the final two book ends with power of some data, in those later in the subject, although such readers would be better served by a couple of the, generally excellent, text books for further reading.

Surgeon Commander Jeff Norwood
Colonel in Public Health Statistics

The Life of Sir John Parker (1797-1884) by Dr R. A. Agnew. Bernal Donohoe Publ. Group. ISBN 0 9505853 2 9. £14.95.

Like many a subject before him, John Parker, looked from Scotland and returned with the Mary where his service stretched from Royal George in 1807 to HMS *Calcutta* in 1816. Later usually he went into business, a naturalist and author of medical books and journals, and was an early supporter of homeopathy. The BSM Historical Collection Library holds his 100 pages

and art in the case of theatre and its light relief. The physician's history, in addition to which perhaps Furber, most important work, the first translation into English of *NTM*, Larsson's *On the development of the [A] system on the structure of the chest and on medical investigation* in which the use of the endoscope was first described by an observer.

Furber was at one time physician to the Royal New South Hospital in Chichester where his position on the foundation wall destroyed the value of this book from an expanding job elsewhere, but he badly hesitated as to prevent his being ejected the job, and acquired him to a long term interest in Furber, which culminated in the well-known and an expanding book.

Advances in technology have been freedom for small press publishing, and the book is mostly produced although infinitely some of the present reproduction are a little dark. For those interested in the procedures of interdisciplinarity natural medicine, this is a valuable resource and anybody purchasing a copy will have the pleasure of knowing that 1/3 of the cost will be donated to the British Lung Foundation.

John Wicks, *History, Curriculum, Librarian*
Institute of New Medicine

Practical & Experimental Research
Third Edition. Edited by Stephen Lock. Front
M & H and Medical Publishing. BMJ Books, 2000.
pp264 ISBN 0 7279 1306 6 £40

Solution is a month passed without confidence of legitimacy in research such as plagiarism, falsification of data and their ilk. As Research Government suggests Clinical Governance, we all find ourselves involved in some way in the discussion or prevention of such fraud and misconduct (giving the volume) that of help try to tackle the subject as deeply as possible with confidence.

Although a collection of reviews commissioned to cover key topics, rather than a systematic textbook, it succeeds in covering most of the ground with authority. The volume is set in five chapters that encompass history, philosophy and research learned in the USA. From the start there flows from there on, many studies of grey between best practice, and given final, presenting some interesting examples of

the latter. While some may feel discussion of congressional and other matters slightly peripheral and some of the writing occasionally charged, the overall picture of the research establishment to face up to the problems is thorough. Perhaps of more help in the genre of that go I may also see to check who has been involved with research of our kind.

Significant contributions to the green in national issues in the USA, and an interesting range of European countries. Some of these are necessarily a bit thin, and the spending of material about the USA, across several different chapters and sections makes the construction of a complete picture difficult. Coverage of France and Germany is substantial and many relevant details.

The final contribution considers the role of other countries, national discussion, the role of patient action, and includes a personal and describing account of the human side of drawing attention to environmental. Opinion given on the value of other countries, and in providing a powerful perspective, however an excellent research-inconcordant, appears from progress; this the excellent review of a detailed technique that can be employed as a strategic planning tool.

One note that is omitted is on research but not needed, arguably enough, perhaps in the role of management and economic pressure and engagement in technology, fraud and misconduct. So long as some only watch the bottom line, and give no credit for maintaining high standards in research, the apparently low chances of being caught may continue to encourage these crimes. If only Corporate Governance could address these, the system might be seen to reward the just rather than the profitable.

Reviews, and an appendix provide various illustrations as to how to implement systems to detect and deal with misconduct, but there is an irony and some formalities. In many ways, this is probably the most interesting thought rather than final plagiarism. There will be more in the next edition for a chapter describing implementation within Research Governance, and in ethics.

Although awareness may be limited by price, every medical practitioner, every researcher and most members of society and allied professions should read this book and discuss it with their peers. It is of course daunting and very important.

Dr Howard Oakley, Head of Survival &
Thermal Medicine Institute of Naval Medicine

Personal Development Plans for DENTISTS the new approach to continuing professional development by Anne Kingston with Chris Franklin & Stephen Chang (Radcliffe Medical 2001 ISBN 1 85333 902 6 pp 124 £29.95)

Advances in Clinical Governance and Quality Assurance in Dentistry provision have driven the dental profession into the era of mandatory accreditation and rewards the formal expression of accreditation and appraisal schemes. This powerful political agenda has served to shift Dental Postgraduate Education on a higher plane, requiring dentists as individuals to think about carefully about what, and why, they are learning. As a outcome of effort there is now a real impetus to dentists working more closely with other members of the dental team to reach common goals.

The authors of this excellent book believe that, by formulating themselves, the new culture will offer an opportunity to make dental postgraduate education more relevant and more enjoyable. The book is based on the premise that the goal can be achieved through planning, when needs can be limited and the authoring can have control that learning has been achieved. Working with the strong educational framework within Dental Postgraduate Training will be well supported with many of the concepts explored in this book.

Before plans are made we need to identify our learning needs. Identification and presentation of our needs ensures that the forward view we have to clinical education issues is used effectively. To this end the early part of the book focuses on defining the objectives and methodologies for developing personal learning goals. The authors believe that these needs are typically met and satisfied through the use of a Personal Development Plan (PDP).

The PDP is introduced as a fundamentally simple concept, which nevertheless, has been considered sophisticated as to the way that we learn. A chapter is dedicated to an overview for the evidence base for using PDPs. It attempts to connect the reader with a series of thought provoking challenges and discussion issues. This is followed by a step by step explanation on how to write a PDP, how to develop it systematically and how then to independently evaluate the plan. At this stage I particularly appreciated the 'bullet point' format with the clearness of the initial briefpoints.

There is an expanding chapter on a new concept in self-directed, Continuous Learning

It is possible, and this terminology, such as PDPs, Career Goals (PUNs) and Dental Educational Needs (DENs) as a mechanism by which professionals could adapt their educational needs by an analysis of activity on clinical practice. PUNs data established through multi collection of individual PUNs feedback could facilitate the appropriate education of Dental Educational Needs.

Many benefits proved is covered in the following sections in Eighteen Points Analysis (SEA). Whilst this book seems well to be to complete the support in the present aspect of SEA including a collection of good practice Clinical Audit is explained as a well established method of looking systematically and consistently at our work helping to identify discrepancies, measures or through control systems. The importance of setting appropriate standards to achieve our own clinical output is defined as a program of work.

The final chapter, attempts to extend beyond the PDP towards the more, clinical area of appraisal. Thus, we have monitoring observations on the records for identifying who is the appropriate authority to conduct specific appraisals. There are a number of scenarios chapters to describe group discussion around the potentially contentious issue. The 180 degree feedback concept to patients would have some interesting implications for the military engagement. It is noted in note that these procedures for the and other reasons, can be developed directly from the Radcliffe Medical Centre.

Overall the Personal Development Plans for Dentists is a very informative and interesting publication supported by the currently available evidence of Evidence. Concerning Postgraduate Development for dentists. I would agree that could contain the core of the educational papers and such papers, which may serve to discuss some personal topics regarding. I would also question whether the PDP concept should be better, sold in the dental professional area as a whole and not just to the dentist.

Sergio Caputo DS, Gita Shihab Denture Postgraduate Dental Care

The Doctor's Communication Handbook

Fourth edition by Peter Tate. Blackwell Medical
2000 ISBN 1 85195 999 2 pp 198 £21.95

Communication is a vital part of every doctor's work. It is especially important for General Practitioners. The booklets of consultation profiles and common cases are mostly covered in the 'Background' part. It is rather unfortunate that it is a skill overlooked in Hospital medicine training. I do believe that communication can be learnt and is a skill that you always get improved at. The video module of the MRCPG exam is there to test communication skills and is the element of the exam with the lowest pass rate. Communication is also tested in Paper 1 and the Gold exam.

"This book – and I trust most use the traditional medical history taking model – but it can help you to use that model more effectively, both for yourself and for your patients."

Peter Tate is the Co-ordinator for the Panel of Examiners at the College. He is also a working GP and has a daughter at medical school. His daughter has a wealth of knowledge to use in writing this book. The book is written in a very readable style with a few relevant cartoons to break up the prose. He also uses clinical situations to illustrate the point being made. It is perfectly possible to read the book, even to cover. However putting some of the suggestions into action, and then discussing them with a colleague or teacher would probably enhance the learning experience. Each chapter includes practical advice. To start with there are sections which deal with the patient or family.

Andrew goes to the Doctor with just a cough. They go with XRAY about the coughs and with CT/MR/FAH about the coughs and with EXPLANTATION about the coughs.

Not only do you need to think about the patient but also about yourself. The way you feel will affect the way you work. A whole chapter looks at the importance of being aware of your own feelings. If a patient makes you feel angry then you need to ask yourself 'why?' And perhaps reflect back this back to the patient. There are some useful tools for analysing and ensuring consciousness. This can be very helpful when valuing consultation, and is a useful insured

topic. Another chapter looks at different personal strategies for dealing with angry patients or frequent attenders.

"With long reading, difficult passages, it is worth considering trying to absorb the style and content from scratch. You may be surprised by the results. This may be the most important strategy in this whole book."

I loved the book, full of strategies and hints and it would be a useful book for any GP Register. I would also recommend it to hospital doctors especially on VTS. I am sure anyone involved in education and teaching would find it helpful. Though nothing new to Teachers it may be a good refresher.

"An GP can hope to be effective or derive job satisfaction without developing an ability to understand having a sense of where to stand and where to go on."

The book part of the book is a organized reading list. All the key books for MRCPG are mentioned. Another very useful section looks at recent publications under subheadings. There could always be need to drop into conversation during the oral exam.

This book is easy to read and covers a range of areas said in all chapters. I would certainly recommend it to anyone taking MRCPG and wholeheartedly agree with this quote:

"Make it a rule to know more about your patients when they leave than when they came in."

Surgeon Lieutenant Commander Peter Marshall is Royal Medical Officer in Training Officer for Training.

Obituary

**Surgeon Captain F S Preston, OBE FRCS
1923-2001**

Surgeon Captain Frank Preston who died peacefully on the 14th August was the last Principal Medical Officer of London Division RMB before war time service, in World War II.

At the outbreak of war Frank, as Glasgow was a medical school, a reserved surgeon but Frank was volunteered for the Royal Navy to serve as a rating. Appointed to HMS COMBATANT he was a surgeon when that ship sailed with gold was suspended and sent to Harwood, on 2nd May 1940.

Frank selflessly described his time as merely willing to save the ship in the worst ship badly getting her lost war!

After a short spell of convalescence home he trained in a motor mechanic and was appointed to motor mechanic, in a general driver (ATC) motor boat he described how the vessel blew in pieces shortly after he had left it independent he was involved running vehicles of Mafeking before in Jerusalem.

Returned from the Royal Navy he continued his studies at Glasgow University qualifying as medical 1941.

His enthusiasm for the Royal Navy resulted in him applying for and being awarded a short service commission shortly after qualifying. He joined in the War and Middle East as a medical officer on an aircraft carrier and a survey ship. On release he returned to Glasgow and during his specialisation as anaesthetist he joined the medical RNR, Air Division based at Aldenham gave Glasgow International Airport and worked his release was in Jerusalem Palestine. He came South to join RMA and the London RNR, Air Division based first in Colburn and later at Benson. During a visit to

Benson the last War Surgeon Captain Oliver was impressed with the enthusiastic medical officer and asked him to transfer to HMS PLYMOUTH as he knew the Air Division, more shortly to be read.

Simultaneous during office as HMS PLYMOUTH is recruited more in the art of chemical driving, including more other than the Commanding Officer.

Principal Medical Officer (1947-70) he headed a department of about 45 officers during a very busy period in his career, mostly of cooperation with RMA/PLM. Promoted Surgeon Captain June 1950 and appointed Honorary Physician to HM the Queen 1972 (he retired in 1973). In retirement he chaired and supported the Glasgow Sea Cadet Unit. Most recently he also chaired and supported the Officers Association for RMA PLYMOUTH, London Division RMB.

A successful 19th birthday party was held at Bristol in the Naval Club where he brought his guests the glass, protest!

A Fellow of the Royal Anatomical Society Frank had many publications and awards to his name in the field of human medicine.

His final appointment with British Airways was Medical Director.

Our sympathies go to his Widow Margaret, son Alan and daughter Julia & Kate.

By editor

I regret that I have lost the name of the author of this obituary.

See also RMB Vol 117 & Jan 2001 page 111

Frank Preston was also the credit as consultant in various medical to MEDCEN and the source of much help advice to me on my early days as President of the Central Air Medical Board.

Notice has been received of the deaths of Surgeon Captain Thomas Frank Dore, age 96, Surgeon Commandant (EX) Portland Naval Forces age 96 and Surgeon Commander (EX) Drifford Adams. Our condolences go to their families and friends. The editor would welcome any words in memory of them.

New Matron-in-Chief



CAPTAIN LYNNE GIFFORD RRC RRC RRC RRC RRC

Captain Lynne Gifford was educated in Canada where she attended Thomas L. Kennedy High School in Moncton, Quebec and Queen's College School of Nursing in St. John's, Ontario.

She joined the Royal Navy as a Nursing Officer in 1979 having qualified as a Registered Nurse in 1976 and subsequently completed nursing courses in orthopaedics and plastic surgery. Since joining she has served on Royal Naval Hospital, Haslemere and Portsmouth and the Ministry of Defence Hospital Unit in Plymouth. She has also served in RN Primary Care establishments at CTRM Lympstone, HMS Raleigh and JSC Portsmouth in the UK, and abroad in Flagship Clinics in Gibraltar, Naples and Hong Kong.

Recognised for a Smith & Nephew Scholarship she conducted research into cold injuries at the US Naval Medical Research Institute in Bethesda, Maryland and held visits with Commander Helicopter Squadron in Norway in 1990.

Commissioned into Queen Alexandra Royal Naval Nursing Service as a Nursing Officer (Sub Lt) in 1979 she was promoted to Senior Nursing Officer (Lt) in 1981 and Superintending Nursing Officer (Lt Col) in 1985. She assumed the Royal Staff Course at the Royal Naval Staff College Greenwich in 1996.

Captain Gifford was a QASWNS Recalling Officer and Deceased Nurse Manager of the Truro Directorate in Royal Hospital Haslemere. She became the Staff Officer to the Director Defence Nursing Services before being promoted to Commander and was then appointed to the staff of the Medical Director General (Nursery) as the QASWNS Assistant Officer and Deputy to the Director Navy Nursing Service.

She was awarded the Associate Royal Red Cross in 1983 and appointed as Director Navy Nursing Services Manager in Chief QASWNS in July 2000.

Service News

Operational Measures List - Operation Telic

Order of the British Empire
Commander D E Kinney MC (SARNOCK)

Awarded Royal Med Cross
Lieutenant J P Dwyer QARNS

Medals in Recognition
Medical Assistant M A Saxon

Queen's Commendation for Valuable Service
Commander M A Watt MBChB MRCP, RCN

Appointments as
Clinical Consultants to MEDA(M)
Mr T Grant, Arbroath & Forres, Ross

Appointments as
Consultant Advisor to MEDA(M)
Surgeon Commander R P Robinson
Ayr, Ayrshire

ROYAL NAVAL MEDICAL AND DENTAL OFFICERS

Achievements
Brigadier John, Major & Lieutenant

Surgeon Lieutenant
A R L Atchapp - Deployed on Occupational
Medicine, Sports Medicine & Training Inquest
Force in Planning

Surgeon Lieutenant Commander
B Pollock - PCARMS

Surgeon Lieutenant Commander
L J Richardson - MRCCP with distinction
RCPSG

Surgeon Lieutenant
T J Macdonald - DCMC RCOS

Surgeon Lieutenant
A Brown - Deployed on Sports Medicine &
Training Inquest

Surgeon Lieutenant
J Curry - DCMC RCOS

Surgeon Lieutenant
I M Knight - DCMC RCOS - Family Planning

Surgeon Lieutenant Commander
P Marshall - MRCCP with distinction RCPSG

Surgeon Lieutenant Commander
J D McInnes - RCPSG

Surgeon Lieutenant Commander
J S McLachlan - FRCA

Surgeon Lieutenant Commander
K Brown - MRCCP

Surgeon Lieutenant Commander
J L Smith - FRCSM

Surgeon Lieutenant Commander
P Taylor - FRCS

Armed Services Consultant Approval Board

Surgeon Lieutenant Commander
A Gaby - Accident & Emergency

Surgeon Lieutenant Commander
C J Hall - Trauma & Orthopaedics

Surgeon Commander
A Pargaderke - Trauma & Orthopaedics

Surgeon Commander
A Price - Anaesthetics

Surgeon Commander (R)
N S Turner - Gastroenterology

PROMOTIONS

In Acting Surgeon Lieutenant
R D G. Howard - A L. Colman - N R G. Alder
C M. Hillman - R E. Rappaport Smith
D. Longman - M R G. Jones - D. Moore
A. S. Rose - S P. Pringle

as Acting Surgeon Lieutenant (D)
L. E. Park

as Surgeon Lieutenant

K. L. Beadle, H. E. Bradley, A. M. Dwyer,
D. R. C. Gledhill, K. P. Gledhill, D. Gordon,
E. J. Hether, S. C. D. Ingham, M. H. Lindsay,
D. M. Monaghan, S. W. P. Mulliken,
L. E. Morris, W. J. P. Newson, E. R. Parker,
A. J. Sheehan, R. P. Thomas

as Surgeon Lieutenant Commander

A. R. J. Adams, F. J. H. Bates, A. Brown, J. Carey,
S. M. Collins, A. J. H. Cornsack, C. M. C. Davis,
D. C. Evans, D. H. Farnham, D. A. T. Gey,
D. M. Knight, S. M. Phillips, J. P. Webb

as Surgeon Lieutenant Commander (D)

R. R. Emmott, P. N. Holmes, T. H. Mullock,
C. J. Nugent, G. A. Sandock

as Surgeon Commander

D. C. H. Blair, N. H. Brodie, C. J. Reed, A. J. Miller,
R. Malt, S. R. C. Smith, S. J. Tanser, M. C. G. Terry

as Surgeon Commander (D)

N. K. Dunford

as Surgeon Captain

A. A. C. Ashwin, M. P. Baskerville, M. K. Dean

as Surgeon Captain (D)

D. S. Thomas

**SELECTION FOR PROMOTIONS TO
SURGEON CAPTAIN GENERAL**

Surgeon Captain M. Pughman, Robert
Chad Gyles

NEW ENTRIES

Captainships: Surgeon Sub-Lieutenants
J. L. Anderson, S. J. W. Batten, C. F. Evans,
J. T. Evans, G. D. Hasty, T. J. Holland,
S. W. Hughes, S. M. T. Kilbey, K. J. Knox,
T. O. Naylor, L. L. Skyring, A. H. Smith, R. R. Tansy,
J. H. Watts, J. C. Wells
Surgeon Sub-Lieutenants (D)
A. D. Lovell, L. J. Stevenson, D. R. Williams

DEPARTURES

Surgeon Lieutenant Commanders: D. R. Baskin,
M. P. Randle

Placed On Retired Or Emergency List

Surgeon Lieutenant P. J. Hammond,
M. P. Pennington
Surgeon Lieutenant Commanders: P. A. Adams,
J. Rahman, S. L. Shaw
Surgeon Commander: A. V. Mahon

Prize Winner

Surgeon Lieutenant P. C. Phillips,
was awarded the Command Medal for the
All Arms-Commando Course, May 1993

MEDICAL SERVICES OFFICERS

PROMOTIONS

To Sub-Lieutenant

J. A. Abery, D. S. Parker, S. P. Parker, A. M. Redding

To Lieutenant

G. C. Bennett, N. G. Yates

As Lieutenant Commander

P. L. R. Chalkin, D. W. Fox, M. J. Howells,
D. E. Miller

To Commander

C. J. Lloyd

Placed on Retired List

Commander M. A. Wheat, MBSC, RCM

**QUEEN ALEXANDRA'S ROYAL NAVAL
NURSING SERVICE**

Captain R. Goldfinch was awarded the
AONC and has been appointed as
Queen's Birthday Nursing Sister
NEW ENTRIES: QUEENS
Lieutenants: S. A. Fraser-Smith, B. J. Stone

PROMOTIONS

To Lieutenant

S. V. Johnson, M. E. Rao, S. K. Thompson

To Lieutenant Commander

N. D. Papp, AONC, S. J. Ralston

To Commander

H. L. Adams, C. J. Fletcher, AONC

To Captain
L. Collins AERC

Marine Medical Assistant Kevin Whittier
has won a Richard Lutz Award

TRANSFER OF COMMISSIONS

SGT2s to SGT2s Lieutenant R. S. Morgan

RETIREMENTS & RESIGNATIONS

Lieutenant C. Lloyd Ford, B. A. Mendenhall
D. M. Talley
Commander E. M. Smith ERE

ROYAL MARINE RESERVE & GARDNERS

Surgeon-Captain M. R. J. Hooper
has been awarded the Clasp to the
Volunteer Reserve Service Medal

PROMOTIONS

To Probationary Surgeon Lieutenant
R. G. Moffat, M. J. Winter

To Surgeon-Captain
J. A. M. Tams, ERE

NEW ENTRIES

Probationary Acting Surgeon Lieutenant
R. G. Mendenhall

Probationary Surgeon Lieutenant
T. L. Gray

Probationary Surgeon Lieutenant
Commander
B. Mendenhall, A. G. Collins

Surgeon-Captain
D. B. Mendenhall

RETIREMENTS & RESIGNATIONS

Surgeon-Lieutenant C. J. Conroy
Probationary Surgeon-Lieutenant J. D. Baker
Acting Surgeon-Lieutenant R. J. Brier
Quartermaster

Resignations:
Lieutenant M. Mendenhall, Lt. F. D. Brier
Lt. D. B. Mendenhall

The Colley Award

When he left the Service in 1946 Surgeon Rear Admiral (Lt) Colley, gave his name to the promotion in the Middle & Services Officer who gave the highest marks from the Royal Naval Officer Course in RMC, Dartmouth. The award was so far retained by the master for his correct career and then returned to RMC for the subsequent award. The first winner of the award was Lt. Lt. Lieutenant (later Commander) John Dalglish. After a very successful career John Dalglish left the Service in December 1959 and presented the award to RMC.

After discussion with Admiral Colley, MRCA decided that, in order for more people to benefit from the award, and to more properly reflect the importance of the award, the award would no longer be awarded every three years. The winner is to be given a paper award presented by the Head of the Medical Services in each and every year of 1956 (MRC) and MRC.

The Board study the reports on all Medical Services Officers, with their years' service, and then select the officer that best meets the following criteria:

- Possessed well on the Second Degree Officers Course, and in particular showed the most progress during training.
- Displays leadership and management skills during training and in his appointments.
- Gives the best example both during training and in his appointments.

The Board recommended the selected officer to MRCA for consideration. The first Board was convened on 17 May 1956 where Lt. Surgeon W. Mendenhall was elected for the award, the second Board was on 19 May, and selected Lt. Paul Mendenhall for the award for the third three years. He was presented with the award by MRCA on Friday 1 June 1956 at the annual MRCA officers' study day at RMC, Dartmouth. The Board will meet again on May 1956.

Blood Red Dinner 2003

Surgeon Rear Admiral Curre delivered this speech at the dinner of the Royal Naval Medical Club

Admiral Board, distinguished guests ladies and gentlemen, on behalf of the Royal Naval Medical Club welcome to the Blood Red Dinner held this year at HMS HMASA. It is the first time that the Club has been privileged to dine at Portsmouth, which has a distinguished history. The Romans camped here, on coast from Chichester to Winchester, later there was an Abbey here where Henry VI was so busy, it is said that Henry VIII was very fond of the place but that did not stop him from ransacking all the monasteries. It later became Port Southwick and in 1664 the RN School of Navigation moved here to avoid the flooding. It is however better known as Admiral Boscawen's ship yard in Operation Overlord. The ship doctors, which some of you have already treated, will be open until 2004 and are well worth a visit. It especially the physical steps were originally taken for the whole coastline from Portsmouth Dock to Looe in to maintain security. The carpenters who installed the first windows were kept here until the windows began to fall and it was to keep you as long tonight!

As many of you know the Royal Naval Medical Club was founded in 1941 to encourage Royal Naval Medical Officers to deal with their various colleagues for the benefit of the Royal Navy and its patients. I would like to thank the same (photocopy) themselves today. The first twenty years have passed but I wish personally to thank Admiral Board, the Commander in Chief Fleet (in company it is not protocol page and I apologise) you have made a particular effort to be here tonight having flown in from the West Country General Q Dingwall has also flown in from the North of England. I believe this occasion had five seven have taken said.

It has been a tradition of the Club that the current MEDCM gives an account of his membership of the Medical Service. It is a tradition from which I will now derive insight. Nevertheless I will avoid from many previous incidences that might of the purpose of the dinner is to share both our experiences and

make new friends. Thus this year we have invited author and Poet Colwick, our new Secretary has organised a bar restaurant until 0400. Well done, the doctors! How best to eat to some of you have and to have an opportunity to speak to you I think, you have done very well tonight but I would also like to thank Mr Pitts the Master of Hotel Mr Blakes the Chef de Cuisine without whom we would not have had such a splendid meal and Royal Navalist Johnson and his associates.

Since the Club has met there have been many changes. The Medical Management Review has been largely implemented and we have new leaders at the Defence Medical Services Department in Lieutenant General Q Dingwall as DCDM and our very own Surgeon Vice Admiral Jenkins who is here on his own right as a member complete with his personal guard Mrs Mary Pagan Lord Lorraine of Dingwall.

MDM was the home of many services of the Defence Medical Services. To many of us, it seems surprising that it took a distinguished Psychiatrist David to tell us that you needed a Defence Medical Support Service to map to the required to provide health services to Service personnel in general. As long as we have a clear split from the provision of Operational Medical Support and training with and support Service personnel in general and understanding its own terms full operational capability.

We also now have a Defence Health Plan which will enable the Defence Medical Service to describe what they do and others to ask for the funds needed to deliver that service. DCDM has to be managed to support CDMM in developing and enhance the DSH. Not for this time you deserve your supper!

When I write this post I give myself about seven

- to improve Medical Operational Capability in our customers.
- To enhance Force and Condition of Service including training opportunities, so as to encourage retention.
- To deliver the message of the DSHM and provide it to all members of our customer and to

recovery has. Unfortunately, we have had to take the RMH as a strategic measure. In any event there was no one left in the UK for the first 6 months of the year.

Unfortunately 2003 will be remembered for the long time the RMH was deployed in Bosnia. PCOF 48013, with the Commando Forward Support Group, other ships and medical with 11 and 12 Field Hospitals. I would particularly like to thank the RMH Medical Branch for their contribution, especially the 80 Nurses and 1611s who deployed with 14 Field Hospital. They changed the RMH to an extremely good light. However, when I met them in their return, but one wanted to transfer to do TA. We were therefore unable to decide which requires the RMH to provide the support so that we can move and save resources, for this role at least and the heavy requirement for Field Hospital is established.

Hopefully you are all aware of the success of PCOF 48013 in providing medical support, not just to UK Service personnel but also our allies and Iraqi Prisoners of War and displaced persons including four Iraqi children. Major congratulations to Surgeon Captain (D) Henderson and his team. They achieved full operational capability within 48 days of arrival in theatre and were the only Secondary Care facility to be fully operational when the war began. It was great to welcome them back, and many lessons have been identified including the need for portable radiology. However, A&E is already 11 years old and will not go so far over and will need replacement.

Another outstanding success was the performance of the Commando Forward Support Group led by Surgeon Captain Campbell. We must not forget the role played by Royal Nurses and Doctors in support to the Royal Marines. It was very common going to meet all the experts of Surgeon Commando in Surgeon and Walker in the Western Mining Navy.

Another issue we began the support provided about by AMC ACTIVE, OCEAN and other ships and establishments linked to mission of Medical Operational Capability as complete without reference to RMH's support to the Submarine Flotilla and the increasing volume of work, using private work force (Civil Supply and Field Hospitals). I do however have some anxiety that we might be able to be a victim of our own success. There is a fear that there has yet again happened unexpectedly when the

ships are placed in the 1 to 15 days completing that in 2003 it was 20 to 40 days. I will leave others to decide that and work very hard. We could have covered many more casualties including our own. We really should not let Royal Marine Secondary Care Support in about up without being Maine County Afghanistan.

I cannot finish discussing Medical OC without mention of the other side of the Defence Medical Services. It looks as though Service personnel in full operational theatre is exceptionally as possible. I will not pretend that it easy and there are more things that I think with supported Service personnel should be limited by DMAS Medical Staff working in theatre and MOD/MSD staff. However, there are not enough of them especially with so many deployments. This decision can be made, but resource training has not necessarily long, then we are seen in the third year of the 15-Winning Life Insurance. This has been a success of its own success, but we only come on budget last year thanks to a number from COMUSCANT's DLE. This year we are already over committed but thanks to resources from (CDSD) and the Director, of Health Care, we have come to further funds. For that for you are very welcome to visit Port. I may however be wrong both of our personal, people have in the year. We will not repeat the experience of this year heading.

We must aim that to improve Terms and Conditions of Service including training opportunities. This has been most difficult as much as, rightly, beyond the control of the Single Service DLE. I am very happy about training opportunities and believe we have a magnificent staff that will work hard.

However, I remain concerned about the required medical deployment that many of you undertake, often to areas that are insecure and thus involving professional freedom and discipline, discipline and very much against and hardly noticeable practice. We must find better ways of providing Secondary Care support to theatre operations.

The Navy have happily introduced their Common Terms of Service after eight years in position. I understand the previous progression (Q&A) are now better. Many thanks to all the work done by Captain (D) Brown and our friend and Station in Chief, Captain (D) Gibson. It is good to see our Captain (Q) have bought.

Newcom Medical and Dental Officer terms and conditions of service are still uncertain.

I remain in the firm belief that the medical profession of the world Supports Cyprus as the best outcome of the UNMS. Certainly we must accept that the brightest and best officers will have the opportunity for early promotion and demonstrate their competence to join new Higher Medical Management ranks, from which all senior appointments and promotions will come.

Another worry is personnel. I suppose I would say that wouldn't I? However the reality of a professional doctor only receiving one third of his final earnings suggests not. At the very least we must have a position where related to final salary. A final salary that includes all monies, including pensionable awards. I also had a change that we will have to be encouraging our Consultants to leave after 15 years just when they are three years past recruitment, and about to enter their most productive phase for the Royal Navy. Hence this is what is change and we need the final deliberations of JPTSP and an assessment of the overall bulk of our pay rate with the UK Armed.

Two work commitments, the 19th Anniversary of Sir James William Sir Maffland our man and only VC, so far. With so many of the year's best early medical officers doing what we thought I will be, by saying his story. After all, it's the New Zealand who probably have the best chance of winning another VC. Born in Somerset 19th March 1907 he was the son of a Merchant Marine. Educated in Bath at a public school in London then he qualified MB with Gold Medal in Medicine from Guy's in 1930. He was already serving on HMS *DALE* at WELINGTON in the West and then became the first, but certainly not the last Medical Officer to be awarded a MB while serving. After serving on HMS *GLANCE* and HMS *DALE* he was appointed to HMS *BLADE* Flagship of the Fleet Air Arm. It was there that he met and married his wife. Further his appointments to *AMFROCK*, *BLADE* (again), *AMFROCK*, *DALE* and *AMFROCK* and finally to the postbox HMS *DALE* in April 1937. One was at the time a North province with a mixed Christian and Muslim population. The collapse of Turkey led to the invasion relations and war and the Highland Light Infantry was used to quell the rebels. The Times correspondent wrote: 'The whole of the houses around the harbour opened fire on the Customs House and British Patrol. Every window held men or three rifles and the fire was directed in something appalling. The patrol

immediately got into the Customs House and started to return fire. HAZARD now began sending around gun boats at 10 men and two officers, together there were about 10 men and six officers dead or wounded. The whole town seems to have been at the first shot and it is believed that some 900 Christians and been massacred. Maffland had volunteered to go ashore in the boat and worked tirelessly trying to evacuate the wounded and get them back to the base. His clothes were also drenched in a dozen places although he himself was unscathed.

He had further was feared that that his late modestly earned wife at 1960, dying a year later. His last efforts were positively suicidal and would may have been some form of PTSD or similar mental consequences. It appears that we were not any better in looking after our own than we are now.

My own career has been nothing like it, missing or unscathed. Nevertheless I have had moments but not much foreign travel. I will believe today a youngster will join the Navy for early travel, comradeship and professional satisfaction. These are still available in the UNMS.

You will remember that my deal was not to support medals. I believe that has happened although of course medals remain. People. There have only been two posthumous voluntary payments released this year and one withdrawn. I believe we are at the point at a point of the very hard work of my profession and asked of all of you here present. We have historical and the photos are up to you. However it's still a very long way back to the values.

As I go off work and head over to Mile Fortification, Roberts I will remind the COMBATANT in his common law role that we need a new Joint Clinical Treatment. Step that is its purpose. This purpose will undoubtedly include supporting troops who it needs to be a dependable military unit capable of a hard pushing as well. As well as medical care of the at emergency, a new have a modern communication in. Now we can continue to rely on the RN Medical Service providing you with a top class medical service both at sea and ashore.

Members of the Royal Naval Medical Club I would ask you to be spreading and drink a toast to Our Guests.

Journal of the Royal Naval Medical Service Accounts for the Year ended 30th September 2003

PROFIT AND LOSS ACCOUNT

	20 9 2002	20 9 2003
Income	£	£
Journal subscriptions	9 086	8 586
Advertising revenue	1 208	851
Interest earned	215	156
Miscellaneous postal sales	0	171
	<u>10 509</u>	<u>9 764</u>
Expenditure		
Printing and distribution costs	9 900	8 864
Postage and delivery	45	201
Binding costs	28	28
Audit and accountancy	129	118
	<u>9 102</u>	<u>9 211</u>
Surplus (Loss) for the Year	<u>1 407</u>	<u>553</u>

BALANCE SHEET

Current Assets	£	£
Investment Accounts	10 000	1 960
Current Accounts	18 366	1 831
	<u>28 366</u>	<u>17 311</u>
Liabilities	£,197	£,197
	<u>41 5 487</u>	<u>41 5 487</u>

TOTAL NET ASSETS

Represented By:		
Balance at 1st October 2002	16 261	12 072
Post period adjustment	0	1 000
Transfer for the Period	1 266	563
Balance at 30th September 2003	<u>41 5 487</u>	<u>41 5 487</u>

Notes to the Accounts

The above statement of the books and records for the year ended 30th September 2003 and extracted off the information and explanations contained necessary for the audit. These represent the accounts above a true and fair view of the state of affairs at 30th September 2003 and of the income and expenditure for the twelve month period then ended.

Books and Records

Checked and found correct.

By order: The accounts were audited by the firm of accountants for the year ended 30th September 2003. The audit was carried out by the firm of accountants.

Administration Notices

Management Committee

Supporting Committee: N P Boddock, its Chairman and Editor: Captain Captain (CD) WR Lamb, Surgeon Captain D Ince, Commanders P Reid, Captains L Gibson (RANRNP), Surgeon Captain C P O'Riordan, Commander G Marshall (RANR), Lieutenant V Williams (RNLI), Dr S Kilbourne (RANR) and Editor: the Editor's statistical adviser

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Photographs taken by video cameras, the constant ability to go on and on without ending up with the open or photograph. Where a camera on videotape might be unable to focus on an object or be a distance from a particular object, a photograph is taken from the point of view of the subject with the camera just behind it. Experiments on human subjects will surely demonstrate what the point is. I am, however, by an open camera, someone, someone, and followed, and the subject may experience that each taking goes by or by a different individual. Above the level of technical possibility, the ethical considerations, to be avoided.

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The role page should contain a concise informative note, up to five key words, the names and surnames of all authors and their affiliations, and the department(s)/institution(s) (single/multiple names), where the work was carried out.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Tables and illustrations (figures) should add to the paper rather than only repeating information presented in the text. (If possible, tables and illustrations should be on an individual page, separate from the text, be numbered in the order in which they are mentioned in the text, and have an explanatory, or space saving, title.)

Notes: photographs of a, dorsal; ventral; spent or other occasions involving members of the Bay of Bengal biotic province and b, southern

Normally preserved specimens will be monochrome. The views of the plates should be simple where colour information is thought to be essential to highly descriptive. Photographs must be of good quality, glossy, unmounted, and be presented in camera-ready form, with cut-out areas removed only. The figure number (rather than scene and expedition) should be marked on the back. Line drawings should be made using the views and labelled as (or equivalent mapping) and submitted as photographic prints, or high quality photocopies. Labelling and mounting should be sufficiently large, to admit, legible, clear cut-outs for publication. Functions however are not necessary.

Table 1

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responsibility for the accuracy and completeness of testimony lies with the witnesses who shall not be assisted by attorneys staff. Only essential questions should be submitted and witnesses should testify directly through the original document. References are submitted in the form of captioned Exhibit materials and are transferred and listed consecutively at the end of the transcript in the order in which they are first presented as a full direct examination. Should the witness at the end of the report raise the issue of testimony adopted by another witness, Exhibit materials submitted for publication should be included in the reference column in the report. Those in possession (including any submitted for publication), previous examination notes and completed statements should be collected as such at the conclusion.

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The manuscript of this review and authors list made individual contributions to the study under supervision of the project director, who coordinated a multidisciplinary research group of young research fellows in design, facilities, and

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† Please enter the next month after your application and this year

‡ Please enter the same month as * for ensuing years

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Foreword

by MEDICAL DIRECTOR GENERAL (NAVAL)

SURGEON REAR ADMIRAL N A FARQUHARSON-ROBERTS

CBE CBE

MA(ONC) FRCS



When I took over as Medical Director General (Naval) on 5 December 2003, I took as every member of the Naval Medical Service and our civilian counterparts today and here I intended to do business.

I am extremely grateful to the Editor of the Journal for this opportunity to give you an update after 1 month on post.

I took over a Naval Medical Service at a time of high morale following an extremely successful Operation TELIC which has raised the profile of the Naval Medical Service internationally both within the Service and across Defence as a whole. That will be of major benefit which is central to the procurement decision for the Joint Casualty Treatment. May doing what is going to be a very difficult job personally.

I have formally set in train a review of the structure of the Naval Medical Service. We have had repeated changes of direction based on it but we have never managed to look properly at

what we are doing, what we have got to do and how we build and take forward that vision and a mission. It is my hope that following this Review which will inevitably be informed by the Dependable Medical Capabilities Study that reasonable career pathways for both our career professional grouping within the Naval Medical Service can be set out rather than have some of them being a grey ceiling. It is the end of the journey.

I do have concerns with regard to the future of the Medical Assistant cadre. I have said repeatedly that the MAs are the backbone on which the Naval Medical Service is built, but the cadre must move forward. The most critical change is to get a reasonable qualification on the floor as the MAs branch have something that they can use outside that recognises their professional status. I know that this has been ongoing since the 1990s but I believe that we are beginning to be able to set a way ahead.

As a signed as Medical Officer, I am personally concerned about some changes that is coming. The early part of October is inevitably going to impact on operational capability in 2004 and it is extremely difficult to plan for in the middle of the changes are not to be sanctioned by the various medical bodies.

I am also keen to take forward the development of the Q&A and specifically the Nurse Practitioner. We are behind the Army on this who have been using their practitioners as segmental nursing at least for some years. I envisage the main practitioners in sharing the load with MAs and all leading the Medical Officer. We will have more after the dual meeting considered on board HMS P43 (H12).

A major priority is direct funding. We are not doing as well here as we might at getting people, trained as Medical Branch of Service. I very much hope to be able to establish a Seaborne Medical Board, but that is a mile post of the journey. We need get the processing through the suit, keep doing more quickly and efficiently.

A major area of change will be the introduction of the Royal Fleet Auxiliary Medical Service, into the Royal Fleet Medical Service proper. This is considerable because, as is stated, no medical officers held in the Royal Fleet Auxiliary and of one are to maintain the

...continued production and harvest of resources

I hope to be able to use this and other platforms to keep you informed of what's going on with your Medical Records and the associated people.



Since I wrote the Editorial, I have learned that I have been selected to deliver Royal Admiral Peter Kinniburgh, as the Chief Executive of the Defence Medical Education and Training Agency from 4 May. While I am clearly delighted to have been selected, and am looking forward to what will no doubt be a challenging appointment, I am aware too that to be leaving DME after almost a lifetime, I would like to express my thanks to all of the staff at DME who provide so much of the support to the RANMS and the Navy (often without receiving the recognition they deserve). I also want to thank my successor, Commander Frank BELLID (2003) every success – I know he will enjoy every minute of it.

Philip Rafter B

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General Interest

The First QARNNS Officer To Gain Green Beret

Captain L Gibbons ARRC OHNS QARNNS

Lieutenant Karl Harley QARNNS made Service history on Wednesday 1 March 2003 by being the first QARNNS Officer to successfully complete the All Arms Commando Course at the Commando Training Centre Lympstone. Lieutenant Harley entered service in 1997 as a direct entry Nursing Officer after successfully passing Admiralty Interviews Board and ORMC (Dorchester) Board Exams. A Registered Nurse practising as the RNLI Nurse commanding the clinical operations of Accident and Emergency care has been awarded the role of the QARNNS operational role in the Commando Forward Surgical Group (CFSG) in medical support of Commando Operations. This for the first time, both in existence and more recently on OP TELIC. It was the experience that prompted Lieutenant Harley to achieve his long term ambition of joining the Green Fleet by attending the All Arms Commando Course. Lieutenant Harley completed the 12 week grueling course in view of the worst conditions the UK climate has to offer from January to March this year. In service he takes the perspective both

physically and mentally to the way in which this he did by training with Commando units on the Plymouth area in the spare time from his clinical practice at the Accident and Emergency Department in M&F's Dorset. As the end of the final assessment test which is the 10 mile march across Dartmoor. Lieutenant Harley was appropriately presented his green beret by Colonel McNeill LWLC. Colonel McNeill formerly commanded Commando Logistics Department at which CFSG have an integral part. Shortly after this Captain Lynne Gibbons ARRC OHNS QARNNS Director of Naval Nursing Service presented Lieutenant Harley with a commando badge for his 12th day uniform pinned below (shown by FORREST Curry). His success in joining the armed is not only a service milestone and a remarkable personal achievement at the age of 31 relatively old for the career has served as a reflection of the determination of the Service to provide professional care within the spirit of Commando Operations with the best training available.



General Interest

St Dunstan's - A Worthy Cause

by Philip Raffalli

St Dunstan's Charity supports anyone, who has served in the Forces, who is now blinded due to war eye services in Britain. Since its inception in 1945 St Dunstan's has helped over 1,000 blinded men and women come to terms with their disability, which, frequently involves more than just blindness. The charity also maintains the Duke's Gallery from which supports members of the Emergency Services blinded in the course of duty.

As well as running residential respite care and holiday centres, training and rehabilitation, financial and pastoral care are provided. The duty of care extends to all St Dunstanians, and their families for life.

A Special "Speaker"

St Dunstan's speaker, one to deliver talks from coping with sight loss and other fundamental needs. One such individual is Dr CPDRA Nigel Whitley, who is a full time speaker for St Dunstan's.

"With the help and guidance of the staff at St Dunstan's and other St Dunstanians, I have realised that with determination and encouragement being blind is only an obstacle and not the end of the world."

CPDRA Whitley served for 23 years at the Royal Navy before being medically discharged after coming home to injured eyes that affected his vision and caused many problems, leading to severe loss of vision. When his sight eventually failed, the experience dramatically affected his entire life.

"I lost my sight, my job and my home, in a day. It was absolutely devastating. It took four months, my brain worked to see, yet that it couldn't do without sight."

It was at that point that St Dunstan's stepped in

and began to help extend Nigel's life. He was provided with a home and soon began his rehabilitation and training. The training from St Dunstan's has been invaluable and has included such skills as how to use specialist sensory media software, which enables him to read his own mail and documents (now in 2003, his eyesight). This has obviously benefited him, but has also reduced his reliance on his wife. Through the remanagement and extension of vision St Dunstan's, Nigel has joined the Archery Club and in 2000 he was short listed for the British Blind Sports National Archery Team.

Meeting with Dr Whitley

It was a pleasure for St Dunstan's that Nigel visited HMSA A&E HPTAL, on January 23rd to spread the word about St Dunstan's. He visited the medical department to talk about the way in which it is possible to adapt to life after losing one's sight. He then had a 30-minute session with one of the old Haptans's visitors, well serving with the Royal Navy, MRCP(M), Surgeon Rear Admiral Michael Fitzpatrick Roberts CBE, CBE (HMSA, HMSA, HMSA).



MISSION) remembered Nigel from when he was an Acting Support Lecturer. He remembered being called over to another shop on the Floor by Nigel, asking him to sign off some paperwork, and perhaps have a beer before the night bus. However, on arrival, Nigel asked him to examine a project.

As I did so, it became obvious that the shop was suffering from insomnia. I could see Nigel walk over to the cupboard and think upon a pack of peanuts. He took one himself and threw me one! I've never forgotten that.

St Dunstan's is funded solely by public generosity. Further information may be obtained from:

St Dunstan's,
12 St Dunstan Street
London W1H 4RP
T: 020 7721 8000
F: 020 7721 8100
E: enquiries@stunstan.org.uk

By Order: This article was compiled from a manuscript which appeared in the pages of *Dunstan's Review* (March 1999) and is sold.

General Interest

The Gilbert Blane Medal

by Surgeon Commander R J Guy MB BCH FRCS ROYAL NAVY

The following is a copy of the address given to the Royal Colleges on the presentation of the Gilbert Blane Medal by AERGAS.

President of the Royal College of Physicians of London, President of the Royal College of Surgeons of England, Your Parents and Members of Council of the Royal College of Surgeons of England, ladies and gentlemen.

It is this Gilbert Blane a Surgeon and formerly a member of the Board for Sick and Wounded Seamen established within the ranks of the Board of The Admiralty, is honoured for the contributions of Naval Medical Science which was created on the suggestion of the Royal College of Surgeons of London.

The medal was employed for the purpose of conferring a Gold Medal annually to be awarded jointly by the Presidents of the Royal Colleges of Physicians and Surgeons on the Medical Officer of the Royal Navy who to a degree which was considered worthy of recognition brought about an advance in our branch of Medical Science or an application to the Naval Service or contributed to an improvement in any matter affecting the health of living Landwards or Naval personnel.

Consideration has to be given to the achievement in research, in original studies, and equally, advances of considerable character of curing diseases, and of advances brought to notice of practitioners, work performed in recognition made by Medical Officers within the scope of the regulations governing the Medal. Medical Officers of all ranks are eligible for the medal.

In March 2000 the new Surgeon General Vice Admiral Sir Andrew Robinson CBE gave by the then Surgeon Lieutenant Commander Richard Guy entitled 'An Experimental Study of Human Blood Injury'.

Richard was awarded his MB by the University of Birmingham in 1999 for his experimental work on the acute effects of blood. This study had important implications for the

Royal Navy and has served as a platform for further investigations into the nature of acute pathophysiological responses to trauma. His study has made a significant contribution to the area of research and consequently he was recommended for the award of the Gilbert Blane Medal for 1999. It has been warmly regrettable that due to the tragedy of Richard's serious, possibly irreversible and potentially disabling injury this ceremony has been deferred for such a prolonged period, but I am delighted that his presentation has finally come to fruition today.

Surgeon Commander Richard Guy joined the Royal Navy in 1981 qualified MB ChB Birmingham in 1987 completing New Entry Officers Training a year later. He completed Commando training in 1988 serving with the Royal Marines in Scotland, Aquitaine, Corsica, Lebanon, Bosnia and 42 Commando as a General Duty Medical Officer before starting his specialist surgical training in 1991 at the Royal Naval Hospital Haslemere in Gosport. He served with the Army in Berlin during this time. He became FRCS (Plast) in 1994. He has also served as Officer-in-Charge of the Plastic Unit at Haslemere and recently as the Deputy of Defence Medical Unit at Haslemere as a Plastic Professional Officer in General Duty. He also completed an appointment in Chemical and Biological Defence Establishment Porton Down where he carried out the research for his thesis.

As a senior specialist in General Surgery for many hospitals, over many years and various deployments in 2004 visiting colonial support with Professor James Chalmers at Singapore and visiting a post in the RCHS (then Exeter) on his return to the UK. He was appointed as Consultant General Surgeon at HBRU, Portsmouth where he is working today. During the recent conflict in Iraq war he served as a Consultant Surgeon at the Commando Forward Surgical Group with 3 Commando Brigade Royal Marines.

I would like to thank the Presidents of the

Royal College of Surgeons and its Royal College of Physicians for adopting the medal as their diploma in Surgery. Commissioner Guy had asked them to present the Henry Fife Gilbert Elliot Medal Award.

Operational

'War Surgery at Sea': Maritime Trauma Experience in the Gulf War 2003

Surgeon Lieutenant Commander Jon J Matthews M.R.C.S
Edinburgh Royal Navy
Specialist Registrar in Orthopaedics and Trauma

Surgeon Lieutenant Commander Stuart J Mercer M.R.C.S
Royal Navy
Specialist Registrar in General Surgery

Key words: war surgery, maritime, penetrating, missile injury

Abstract

During the second Gulf War in 2003, the Primary Casualty Recovery Facility (PCRF) embarked RFA Argus (armed) duty on primary war surgery and acted as the vessel, including thirty long range providers of war and displaced persons. Their injuries and operations management are reported. Blastburns, crushes, sustained haemorrhages, gunshot and shrapnel wounds, and severe trauma, suffered a combination of little to address to penetrating missile injuries (see elsewhere) from real missile attacks were treated. All wounds were managed following the established principles of war surgery. The patients were, provided as emergency patients (EPs) including war operations, sustained long bone fractures which were managed with external skeletal devices. Two amputations, and one thoracotomy were performed. The average duration of surgery was one hour and thirty five minutes, with the longest procedure being for an Iliac and femur fracture. This was the first time that the Primary Casualty Recovery Facility had been used to surgically manage war casualties and it fulfilled this role to good effect.

INTRODUCTION

The second Gulf War proved to be strategically an entirely different conflict to the previous one in 1991. Unlike 1991 there were no massive prolonged air bombardments, and those

continued from the large army were outnumbered. Despite this the coalition forces did not suffer large numbers of casualties as had usually been Royal. The Primary Casualty Recovery Facility (PCRF) was deployed onboard.

RFA Argus (armed) provided medical support in the initial stages of the conflict in the Persian Gulf along with the other medical assets based aboard. It handled both medical casualties and long range providers of war and displaced persons. The operations procedures in the thirty six casualties are reported and specific aspects of their surgical management are discussed.

PRIMARY CASUALTY RECOVERY FACILITY (PCRF) RFA ARGUS

This was the second time that the PCRF had been deployed to the Persian Arabian Gulf, the first time was in the conflict in 1991. Unlike 1991, where the PCRF (armed) of a support of personnel, ships, medical and long range providers of war and displaced persons, the concept of a three level compartment had been the PCRF had been converted to handle casualties in the midst of battle as in the northern Gulf of Kuwait, managing and managing casualties it was for a relatively short period of time before they were evacuated to a friendly shore in their proximity. The concept of the PCRF differed fundamentally from that of a more traditional support ship such as the, Upstart, which had been used in the Falkland Conflict. A hospital ship displays the Red Cross and is with it governed under the rules of the Geneva Convention. The PCRF does not display the

Red Cross, and consequently it was a far more versatile facility. R.F.A. Argos is a mobile unit that stays with the medical family; one of its members of families that is often out. Because the PC&F is not insured by the rules of the Geneva Convention it can be deployed close to the Wrecks of the Ark Group. This enables medical facilities to be close to the point of wounding of casualties, to aid their evacuation. The PC&F was established at the Northern Atlantic Grid as a 100-bedded facility on the 15 February 1981. The hospital incorporated an emergency department with four resuscitation bays, a two bedded ICU, a trauma bedded HDU and surgery ward beds. There was a theatre suite with two operating tables. In addition, a radiology department complete with CT scanner plus a two an image intensifier and ultrasound was available along with a pathology laboratory. The surgical department included various subspecialties as well as general and orthopaedic consultations (Table 1).

Speciality	Casualties	Surgeons
General Surgery	7	2
Orthopaedics	2	1
ENT	1	
ICU	1	
Neurological	1	
Plastic & Reconstructive Surgery	1	
Ophthalmology	1	
Paediatrics	1	

Table 1: Surgical personnel allocated to PC&F January 1981-April 1981

The casualty evacuation chain was organized into levels of care described as follows. The needs of casualty categories, a quick relative measure would be discussed according down the collection, and finally return to the U.K. or back to their units depending on their injuries. Injured casualties received initial treatment in collection 1 facilities such as Royal Naval Aid Posts and Field Dressing Stations. These facilities were integral or allocated to staff units and provided triage, first aid and sometimes life saving measures. From here they were evacuated to collection 2 facilities for continued treatment.

These facilities included the Royal Marine

Surgical Support Team's intermediate unit, used to provide the life and limb saving, resuscitation, holding, and patients prior to evacuation to collection 3 facilities. Collection 3 facilities, which included the PC&F, had specialist capabilities such as specialist surgical and medical facilities, and also specialist diagnostic facilities. Finally collection 4 facilities are the final destination for patients who are not returned to their units and are initially provided by the Fleet Marine or R.N.S. and provide definitive management and rehabilitation. The PC&F provided standard collection 3 facilities and was able to provide surgical treatment prior to further evacuation to collection 4 facilities, which were provided by hospitals in the U.K. or onboard the U.S. Hospital Ship USNS Comfort. By contrast even the PC&F also provided collection 4 facilities; i.e. definitive support procedures were done for a number of patients.

Although there is a continuity of care between collection there is no expectation that a patient must necessarily progress through each collection during treatment and evacuation. Indeed a number of patients were evacuated straight to the PC&F from the point of wounding without going through collection 3 facilities where suitable transport arrangements were available to in the early stages of the conflict when collection 2 facilities were not available.

Once onboard R.F.A. Argos, collection patients underwent a general examination within 48 hours. The triage patients moved with the PC&F considerably larger due to the greater absence of an evacuation chain for them. All medical casualties were evacuated either to the U.K. or U.S.A. The ships were mostly used in a holding capacity field hospital capacity. Some of the more seriously injured patients and all the children were transported to USNS Comfort and American Hospital Ship.

PRESENTATION AND MANAGEMENT OF INJURY

Between 15 March and 9 April every day patients, up until were received by the hospital such that they were being there that had received wounds where they wounded were not back evacuation from the Ark Group. Forty five operations were performed. Thirty one patients sustained penetrating wounds due to gunshot, shrapnel and live ordnance received a

	Injury Classification (no./%)	Condition/Condition no./%	Total (no./%)
Upper limb injuries	14	4	18 (10%)
Other limb injuries	4	—	4 (2%)
Head/neck injuries	6	1	7 (4%)
Other injuries	4	1	5 (3%)

Table 2 Causes of injuries

consequences of blast and penetrating trauma caused by road traffic accidents. There were four enemy prisoners of war in displaced persons and American and two were British. The causes of the injuries are outlined in table 2.

Almost every part of casualties had signs of the so-called 'fragments'. Figure 1 shows the performance of limb wounds, in both fragments

and/or impact, suffered multiple, low and high energy transfer wounds affecting more than one body area in 19% of cases (figure 2).

As the PC&F was carrying out an isolation (34 function) part of the casualties had been through some form of medical facility before (half of the casualties) had had surgery prior to

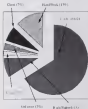


Figure 1 Site of regional wounds on 36 patients transferred to the PC&F 22 Mar–6 Apr 1993

and limb injuries (44%) compared with other wounds (7%) abdominal wounds (5%) pelvic wounds (2%) head/neck wounds (1%) and back/limbs wounds (1%). Penetrating



Figure 2 Site of injuries headed up the PC&F between 22 Mar–6 Apr 1993

being situated in the PC&F and three percent had had more than one procedure. The main duration of operation was one hour and thirty-two minutes with the longest procedure being six hours and ten minutes. There were twelve categories of anaesthesia which was performed on the table. Ninety-three percent of the casualties required some form of surgical procedure and twenty-eight percent required more than one procedure. The most operations carried out on one patient were five. All but one procedure were carried out on women patients and two patients were transferred to the Field Hospital, making further surgery.

Table 1. Injuries sustained by the crew on PCRP 12 May - 9 Apr 2002

Age, Sex, Position	Cause of Injury	ATA system	Notes
Soft tissue injury			
a) Contusion			20 (90.9%)
b) Bruised part of elbow	1	1	1 (4.5%)
c) Splinter pain	1		1 (4.5%)
d) Foreign container top	1		1 (4.5%)
e) Injury of Lateral Tarsometatarsal bone I	1		1 (4.5%)
Bone injury			
a) Fractured clavicle	1	1	1 (4.5%)
b) D.D.H.	1	1	1 (4.5%)
c) Acromioclavicular	1	1	1 (4.5%)
d) R. wrist fracture	1		1 (4.5%)
e) Fracture of tarsal	1		1 (4.5%)
Thermal injury			
a) 1st degree	1		1 (4.5%)
b) 2nd degree	1		1 (4.5%)
Abdominal injury			
a) Splenic injury	1		1 (4.5%)
Neurovascular injury			
a) Acromioclavicular	1	1	1 (4.5%)
b) Tarsal injury			1 (4.5%)
Head injury			
a) Contusion			1 (4.5%)
b) D.D.H. of neck	1		1 (4.5%)
Eye injury			
a) Soft contact lens explosion of globe	1		1 (4.5%)



Figure 1 Butterfly position showing drainage/catheter above

deflated rapidly, further monitoring and a laparotomy. He was returned to the PC&P where a CT scan of the liver revealed that a bullet was lodged deep in the liver within segments five, lying between the middle hepatic and portal veins. As day five he started to desire for closure of the laparotomy, the bullet in the liver was left alone.

No direct information to the PC&P required laparotomy, this may have been partly due to the presence of infection and that the bullet close to the point of wounding and partly due to remote haemorrhage in ultrasound and CT scan at the resuscitation room within the PC&P.

Thoracic Injury

Bleed injury resulted in a small pneumothorax in one patient which was managed with simple chest drainage. In addition four other patients sustained penetrating chest trauma (three). Two (patients two) three of which required simple chest drainage and one a thoracotomy. Finally one patient suffered three trauma to the chest in a R.T.A. and a left rib fracture, which again was treated with a chest drain.

Non-traumatic Injury

Cardiac Injury

Cardiac injury was rare with only four casualties (10%) sustaining damage to significant vessels. No cardiac repair was carried out but two resuscitative attempts were able to provide regional planning and resources that undertaken on vascular supply distal to anterior septal and sublingual septal features of the rib and blade. This confirmed the need for a future time suspension. The

second sustained intubation of the anterior chest injury and again showed the need for an above knee suspension in the late of trauma to soft tissue and bony injury. Another vascular injury again involved intubation of the anterior chest injury increased with an open proximal aortic lesion. This injury resulted in the development of a compartment syndrome of the lower leg, which required urgent fasciotomy prior to transfer to the PC&P. The patient did require leg and two months were placed with splints in place followed the PC&P finally one patient had sustained a fracture of his elbow injury at the wrist.

Abdominal Injury

Eight patients (20%) sustained peripheral organ injuries (three). All three fully able patients underwent repair repair. All four were recovered with significant injury and well known organ. One patient developed a liver drop with an abdominal mass.

Discussion

Despite the differences in the nature of the war when compared to the last conflict in 1990, Casualties were more numerous but especially in the Swahili region. This was reflected in the procedures identified in the PC&P. Eighty three percent were being taken patients of war or displaced persons whereas only 13% were civilian casualties. Generally the pattern of wounding was in the small areas, was comparable with experience from previous wars, altered bodies (34.5, 6.7). The fact that the PC&P used like a military related scene in the articles (4) capacity means that severely low percent of the patients sustained required some form of surgical intervention. This was very different to the experience at a number of Field Hospitals (16) which identified significant numbers of less severely injured casualties, as well as more than half battle casualties. The PC&P was equipped with a CT scanner within the majority of the military facilities, which also meant that a number of casualties were allowed under P.L.R.F. trauma advantage of the facility.

The foreign operating unit of our hospital and their involvement identified the fact that the treatment of penetrating wounds requires emergency on regional resources during war. A significant percent of patients required more than one procedure, which causes yet more delay in

deal and a recommended review was found with the older women, and emphasising the importance of radical measures in their wounds management.

Many are present at consultant, sustained limb injuries in the theatre, and 50% of consultants sustained a functional loss (includes skull, spinal and thoracic cage fractures). However, only four patients (25%) involved a long bone which required clinical fixation. Clinical fixation has become the gold standard treatment for war wounds involving limb injury (9,10,11,12) as the military environment. Experience in recent conflicts has demonstrated that an single supply of fixators is essential in war and the military requires fixed fixators as they are (2,13-14) fixed, the U.K. armed forces medical services are all supplied with the (Grainite) Military Pattern external fixator system. These fixators are light and very easy to use as they have self tapping pins which can be inserted by manual force. Although they can be used as a definitive fixator, they are primarily designed as a temporary device that can be used without an image monitor to stabilise fractures and maintain length during transport enroute to a general hospital. The capabilities of the (Grainite) system exposed problems with femoral fractures as the pins were not long enough for stability. Most of the fixators used on the PCRF were Malleum II fixators, which were used to good effect on open multi-segmental fractures of the femur (three (3) closed, three (3) open and one (1) open). Careful consideration of a more definitive fixator system should be considered in addition to fixators such as the PCRF. Early stabilisation was also achieved via bridging plates in two femoral fractures and a war fixator on one metatarsal fracture and one (John Harris 4 fixator), of the distal lower (3) pharynx. Early limb stabilisation at the initial injury was carried out in all long bone fractures and helped the recovery of soft tissue and also improved patient comfort during subsequent evacuation down the evacuation chain.

Coalition and Iraqi casualties showed a pattern of penetrating missile injury in keeping with a potential conventional battlefield (1,2,3). The small number lay underlined the effectiveness of

primary clip and external supports and highlights once again the valuable principles of two supply wound station capabilities and radical debridement followed by delayed primary closure at best does it but it has been emphasised the importance of early fracture stabilisation via external fixator systems and early soft tissue coverage of wounds via gold class grafts or free microvascular flaps if delayed primary closure is not possible after two days.

Grainite (1) cited showed that a maximal debridement can be attempted on soldiers during war as the time to debride patients is a critical timing. This emphasises that general treatment and important evacuation from the battlefield back to a base secondary care among wounded soldiers who have reached the hospital alive. Experience from the Falklands Conflict further emphasised the low mortality of soldiers who reached surgical facilities alive. Surgical facilities in enemy territory treatment must be positioned close to the point of wounding, and the PCRF was able to provide successfully a surgical facility in order to provide that requirement. A ten and support facilities when. Furthermore due to the size of the PCRF, the available staff and equipment it was able to provide a multi-disciplinary team within a quarter of surgical operations which was desirable in the context of the complex systems units that were involved in the facility. Addition to facilities are staffed with either a general surgeon or an orthopaedic and general surgeon and the certainly but limit can be in the same effective combination (14). However in addition to facilities it is important to be able to make to offer the multi-disciplinary team that the PCRF provided. This is especially important in conflicts where the progression there is not in place and most definitely follow up procedures are required to be carried out. This was the experience in this conflict where a number of Iraqi patients were kept onboard the PCRF for longer than the planned forty-eight hours due to the initial absence of an evacuation chain for them. This may become a more common problem in the humanitarian problems of modern conflicts and the change in role of the Services, particularly in post-conflict operations.

Primary Casualty Reporting Period, FC, & I
R.F.A. Aggr.

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Operational Immediate Life Support Training in an Operational Environment

J E Smith, KW Charlton, N Piper

This work was carried out during Operations
Tide in the Primary Casualty Recovery Facility
(PCR/F) on RFA AGO115

Abstract

The Immediate Life Support (ILS) course is a 1 day programme designed by the Resuscitation Council (UK) to bridge the gap between Basic Life Support (BLS) and Advanced Life Support (ALS). During the build up to Operations TELIC, the aim was to provide ILS training to all staff who may be involved in the main care of patients within PCR/F AGO115 and also to members of staff from other units who may be directed to undertake initial care. In total, 184 staff received ILS training during Op TELIC, all of whom were successful in completing the course

Introduction

The ILS course provides an in-practice facility and provides the skills needed to recognise and deal with the first few minutes of a cardiac arrest, choking, limb injuries and to be a competent team member of a hospital casualty arrival team. Candidates receive a manual to read before the course, in preparation raises the burden of acquiring large amounts of new knowledge on the day. The course includes a basic life support refresher training in airway management and safe use of defibrillation, with the emphasis on practical training. Classroom lectures are kept to a minimum with only short theory lectures during the day. The importance of early defibrillation for appropriate cardiac rhythms is covered during the course in keeping with the completion of the National Service Framework, on heart disease. The use of minimised external defibrillators (LIFE) is also covered in fitting the PCR/F government White Paper. Setting Level 1 and Incident teams which attended a programme to provide more A&Es in public places to attempt to improve survival from out

of hospital cardiac arrest. On successful completion of the course the candidate is issued a certificate by the Resuscitation Council (UK), which is valid for one year.

Box 1. Content of ILS course*

- Lessons:
 - Recognising the early patient and preventing cardiac arrest
 - Introduction to Cardiac Arrest Rhythms
 - The Universal Algorithm
- Practicals:
 - Basic Life Support
 - Airway management
 - Defibrillation
 - Chest compressions

Operations TELIC

Op TELIC, from January to April 2003, drew together 19 personnel of the Defence Medical Services, on a role to support military operations, on Iraq. The Primary Casualty Recovery Facility (PCR/F) on board RFA AGO115 included 200 medical nursing and support staff, with on-call and emergency, a 100 bed facility during the conflict. The PCR/F has changed since beyond recognition over the past few years, from a fairly unimproved outdated facility to a state-of-the-art hospital which was person-capable of dealing with a wide range of medical and treatment problems during the conflict. Because of population loss and because it is very to keep these conditions then economically affecting the general population, such as malaria, liver disease (700 000 patients suffer a tropical infection in the UK every year). To illustrate the potential for cardiac mortality, the population on board AGO115 included several personnel aged over 70 who were male, smokers and who often



and patient had been involved in a motor vehicle accident where the vehicle he was driving, had rolled into a river. He was found face down in the water and was, as contemporaneous and his examination was unremarked and spontaneous pupils reacted after approximately ten minutes of basic life support, this primary pathology was thought to be hypoxia secondary to near drowning.

Conclusion

Op T14 W¹ showed that U.S. training in parallel with its operational role and almost without exception its, breadth from the course, was very positive. It is suggested that consideration be given to providing similar training in all well existing in an operational role within the context of their working environments. The usual emphasis of the course will be supplemented with counter-measures to those traumatic injuries that may lead to cardiac arrest in the young, and the emergency treatment

of these conditions. On completion of the operation this form of medical course is also useful for trainees and MAs who intend to work in a profession in offshore environments.

Acknowledgements

With thanks to all the families including Major Katherine Washington, Lt Col 'Steve' Spencer, Sgt Lt Col Barry Torkler, Sgt Lt Col Richard Plummer, Sgt Lt Col Steve Bland, PLOMA JCB McHughson and to Sgt Lt Roy Blackie for acting as the overall course director at RCTM.

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Operational Keeping the Troops Healthy

A Witt

At the end of January 2002, the environmental health team from 3 Commando Brigade Royal Marines arrived in Kuwait for UN TELIC. Lieutenant Stuart Witt departs the team's work as part of the water services medical health effect.

The main role of the environmental health team from 3 Commando Brigade Royal Marines, which consisted of Lieutenant Adjutant War Royal Navy HMSB, Surgeon Roy James Royal Army Medical Corps (RAMC), Environmental Health Technician (EHT), Corporal Denise Goldsack RAMC, EHT and Lance Corporal David Bullock-Ramsay, RAMC EHT, was to advise professional advice and guidance to those responsible for health within the force. During the early stages of deployment, the team was actively involved in the planning for an opposed amphibious land and march on the 10 June Peninsula. The main objective in this area was to ensure the oil pumping platform could be supplied for export a resource that was deemed essential for the future re-building of the country. On initial analysis of the terrain, it became apparent that a number of environmental health issues could arise, very early on in the campaign.

Initial planning

The threat to the force during the early stages of the oil infrastructure provided two problems, airborne pollution due to fires and physical contamination of waterways. Land and subsequently people. Advice was issued on decontamination of personnel should they come into contact with crude oil, and an immediate action drill was implemented for dealing with airborne pollution. This involved the evacuation of an area and the sealing of the perimeter around. Facilities where would be worked out by using maps across the road network and directions.

As well as the pollution threat, forward fields themselves were also hazards, from many industrial plants in the area. These included three with

large chemical storage, as it was presumed that water, which would be damaged, pose a large threat to personnel in the area. Again, maximum plans were prepared for these plants to be implemented should they be required.

Other issues such as procedures for contamination, disease reporting and appropriate vaccination of possible water contamination and advice on deployed, marine were also addressed in these early stages. Due to the possible use of chemical or biological weapons potential were previously identifying the wearing of gas masks and protective suits. Risk to operations beginning to rise as 1190 objects, a few more will mean that chemical weapons could pose a problem in the latter stages. The Armed Forces have developed very clear policy and guidance over the years from working in extreme circumstances. The UK force incorporated this guidance into the planning documents and included advice on the length and type of activity they could be undertaken in varying temperatures and the amount of water people need in extreme to perform best without illness.

Basic camp issues such as food hygiene standards, insecticide cooking areas, the provision of food washing facilities and general camp maintenance were also dealt with during the initial phases. The provision of early problem, often involved close liaison with the US preventive medicine personnel who undertake similar a task to the army's EHTs but tend to operate in particular areas for example, dermatology.

Operation

On 20 March 1991, the Royal Marines from 40 Cdn RM and 41 Cdn RM were sent to the 14 Free Powerplant as part of the lighting, power of the operation. During the early stages of the campaign, the EHTs worked in the tropical temperatures to ensure that the environmental health

with a view to, given the, command which required.

During the first five days of the campaign, the majority of the oil tankers were secured thus eliminating the risk of explosions and subsequent sea sickness. The RH team visited all of the camp locations that had been established on the Al Faw Peninsula and offered advice on all aspects of environmental health. This included the sampling of water as a decontamination plant had been established to supply occasional water to the Marines.

When the decision was taken to push the main body of the brigade, into Iraq to support the capture of a group including the RHQ coastal Al Zubair Port which had been identified as a potential site to house 7 City Life 241. During the visit all buildings were viewed as to their suitability for occupation. The majority of buildings were fairly modern war-torn structures, showing that they were all in a good state of repair. There was evidence of some post-occupation in the area but there were contained in certain parts of the port. There was also some shanty, squatter which if operational could be used for showers and washing areas.

Iraq

When the brigade HQ moved forward into Iraq to occupy the Port of Al Zubair the RH team went to work looking for sea problems. This was the first location where mosquitoes were encountered and although only a low risk area for malaria an active mosquito control programme was initiated. First to the

deployment procedures had been considered in detail with the threat of naturally occurring diseases in the area. Part of this was post-arrival visit of all the RH teams on OP TILAC deployed with stocks of post arrival equipment which provided a means to isolate all prior to the 2001 Kuwait operations involving the Marines have undertaken the procedures for mosquito bite avoidance, in particular use, well aware of the risks and control measures required. The RH team initiated a program including the use of fumigation in breeding areas and the use of fumigation in buildings, delivered in a shipping container in drums and plastic sealed areas where the mosquitoes would not. At the same time, personnel were advised on the rolling down of screens during biting hours and the use of insect repellents and mosquito nets at night. Other post arrival problems involving insects and cockroaches were also dealt with as the first few days.

From Al Zubair Port views were made to all the locations where personnel of 7 City Life 241 were based. One to the eastern movement of personnel across Southern Iraq, across with physical being maintained and therefore also near. This was level to problems, such as, there was a slight rise in the background level of darkness. The extremely low moon, that were extremely bright and people, sometimes of the good, for good personal hygiene and good sanitation.

With the end of hostilities in southern Iraq the housing by heads moved quite a few problems, and one incident at a gas handling plant nearby had occurred, mosquitoes. Personnel had failed the plant during the night and attempted with all of the killing power to kill these insects. This resulted in many of the rivers being broken and unable to be closed. The following day the plant caught fire, which in itself was not a significant problem as a fire carrier had been established around the plant to contain the fire. It is due to the plant however, was a potential problem, which had been observed during the visit. The RH team rapidly put in place some control measures that would be implemented if required, but the two teams a combined effort and eventually found that it was.

Once the emphasis changed from one of maintaining the use of power, the power and the building, dedicated teams were sent to fixed points for liaison between the military, the local population (MOR) and other agencies. The need was to maintain good, convenient within the local



Water Sampling on the Al Faw Peninsula



Surgeon Gen. James B. Jones (left), Major Gen. David M. Jones (second from left), Major Gen. David M. Jones (third from left), and Major Gen. David M. Jones (right).

great was to identify the main diseases. The JTFs were involved in elements of this including the sampling of local water supplies and visits to local hospitals. Initial priorities were to get a supply of water into the country which began arriving very rapidly in January from Kuwait.

Within the first few weeks, and always had begun to arrive as a regular team, which showed that the initial needs were met. The civilian health groups then started to look at the long term rebuilding of the country. They wanted the re-employment of people to get local facilities back up and running.

The 3rd Air Force (RAF) Environmental Health Team flew back to the UK in the middle of May 2001 after a successful deployment with recovery of ill health among personnel of 74 in the RAF sustaining low. All the environmental

health personnel deployed on OP TELIC from the Royal Navy, Army and Royal Air Force did an excellent job in protecting the health of the UK armed forces. Their work often involved applying the basic principles of Chishwick environmental health: ensuring the supply of basic resources (water, food, supply and sanitation) and control. Although there were many other go-to resources, their advice is seldom ignored.

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Clinical

Operative Shortening of the Elongated Defunctioned Tendoachillies Following Previous Rupture

L. B. Cannon, R. G. Hackney

Summary

History of the tendoachilles (TA) following rupture may result in lengthening over a long segment rather than discrete tear at insertion. We describe our experience and results of a short TA shortening technique of a defunctionally long TA.

Five patients presented with impairment of their gaiting level. Four patients had TA ruptures that were managed by job orthopaedic gloves and 1 had been cast immobilized for 6 weeks. An open approach the TA's were found to be deficient in the mid-portion of tearing over a long segment. A Z shortening was performed. The joints were moved up to a score of 30 points post op.

The overall scores were excellent in 1, good in 3 and fair in 1. All returned to their chosen level of gaiting activity.

The technique described is relatively straightforward and gives predictable improvement in function. It is therefore a useful technique in the open management condition.

Keywords: Tendoachilles rupture elongated shortening

Introduction

The treatment aim of tendoachilles (TA) rupture is correct apposition of the tendon ends to maintain the length of the post injury musculotendons and therefore gait. After several approaches of the tendon ends it is recognized that the TA can progressively heal its lengthened state after non-surgical (1, 2, 3, 4) and surgical (5) treatment. Unrepaired tendoachilles (TA) rupture where the tendon ends become separated with very little or neither case of an increased length of the musculotendons and

therefore lengthening of the TA over a long segment leads to weakness and disability particularly during sporting activities. There are only a few reports in the literature describing surgical shortening of the TA in this circumstance. One report contains a description of three patients operatively shortened TA internal to spring following rupture so that the TA had healed long following non surgical management (6). The only other report is in the German literature and describes eight patients who were also shortened following lost surgical management of their ruptures (4). Of these the outcome was graded as good or even.

60 patients for results of the shortening of TA tendons in three patients.

Methods

Four males and one female (mean age 40) presented principally with impairment of their sporting level and their climbing. Three symptoms became apparent some time after their TA injury. Two were overworkers and three recreational climbers. All five had one TA injury that was managed non-operatively and one patient who had 2 ruptures of the other TA, at a separate time and with twice more surgical repair. One of the non-operatively treated TA's had been cast immobilized for six weeks prior to physiotherapy. The remainder were given a duration of 3 period rupture rather than primary care despite the emergency department and treated by surgery consultation and heavy physiotherapy.

The median time between injury and surgery was twelve months (range 2-60). The patients were placed prone with their feet overhanging the end of the operating table. The TA's were found to be deficient but with evidence of difficult tearing over a long segment. Limited

and treatment and recuperation was therefore left to the orthopaedic. A. Z. shortening was performed each limb of which was treated with 1 PMA in a modified Kesten technique. Each TA was shortened by approximately 4cm. The amount of TA shortening required was determined by measuring the angle the vertical foot subtended with the knee.

A variable range of modest walking foot was applied (flexion) dorsiflexion to 30° (below normal) for six weeks. The patients were exercised at six and twelve weeks and finally at a time of thirty months post op (range 12-46 months). Principally a symptomatic functional and cosmetic change were sought according to Lippstein et al. (6) was applied. Subsequent orthopaedic work performed on

1. Rot. Ext. (flexion) from 0° 90° and 180° per second

Results

The overall outcome, in six, with correction in one gait on three and four cases (Table 1). The subjective result was very marked in four and variable with minor improvement, in two. The objective scores compared to the unoperated TAs were recorded in one gait on two but in one, and post op one. All five patients were able to perform a prolonged single leg, knee perpendicular when they were not able to preoperatively. All attended in three classes level of sporting activity and the two unoperated seemed to fall away after one year. One patient had a self limiting sigmoidal neural infection.

Table 1. Outcome scores for surgically shortened TAs (from Lippstein et al. (6)). Each score is allocated points in multiples of 5. 15 being the maximum (normal) and 0 (paralysed).

Score	Preop					
	0	2	4	6	8 (Right TA)	10 (Left TA)
Foot	15	15	15	15	15	15
Stability	10	10	10	10	10	10
Gait weakness	15	15	15	15	15	15
Functional improvement	10	5	10	10	10	10
Active range of motion	15	15	15	15	15	15
Subjective result	15 Very satisfied	15 Very satisfied	15 Satisfied with minor improvements	15 Very satisfied	15 Satisfied with minor improvements	15 Very satisfied
Functional strength	15	5	10	5	15	10
Overall	85 Excellent	85 Good	85 Good	85 Fair	85 Fair	70 Good

*TA treated surgically

Discussion

The presenting symptoms of progressively lengthened TAs are due to increasing all purpose functional stress and endurance demands of daily living (ADL) are generally misinterpreted for overuse (and voluntary) forearm and forearm weakness. This is in contrast to the symptoms of the chronic, mixed TA rupture, that often include severe weakness of ADL. The partial rupture in our series may at first have been misread complete rupture. We find this unlikely as, these symptoms and surgical findings were dissimilar to the few mixed rupture that present like the many reinnervated procedures described for treating mixed rupture were inappropriate due to the lack of demonstrable inter- and intra-nerve axonal continuity.

The problem of completeness of assessment of TA weakness is highlighted by a lack of consensus on a standard scoring system (2). The system used here is comprehensive and functional. The outcome scores compare favourably with those of Lippman et al (18) whose large series, principally contains cases of acute surgical injury. They also point out that late reinnervation of TA rupture may give functional weakness similar to those following acute injury.

The subjective and indicated scores did not correlate in two of our patients. One who had two and four voluntary results, described their subjective grade as very variable. All five patients returned to their chosen level of activity.

Hydrocortisone have been used to reduce the volume of TA tendons for many years (7). Some authors have suggested that it is not a good shortening tool of muscle function following TA rupture (1) and we would agree. This may be due to the fact that the first fibres a short time out through which the TA is making, occurs measurement of power through deltoid.

The TA shortening technique described in this paper is relatively straightforward and gives predictable improvement in function by correcting TA exposure. It is therefore in our opinion a useful technique in that often misapprehended condition.

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order (p. 144) but there is, rare lapses.

For the naval historian that is a valuable source this book, careful study. Anyone who might find themselves in a similar position should read medical history's words. Home-occupation on the nature of illness, particularly pneumonia, is followed by a more self-conscious over his own means and diagnosis. Although improving in its treatment of medical matters, all medical staff who go to sea should read this book as part of their pre-journey training, for its thoughtful observations of the stresses and strains of modern naval warships.

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Epidemiology for the Uninitiated (HSE
Editorial: D Cuyper, Geoffrey Rose, and GJP
Rafter, London: Salt Books, 2001, Paperback,
216, Price: £11.95)

Reviewing this volume has remarkable little book, written by authors associated not usually with a review to the past, says it is the book that the majority of people turn to when actually getting acquainted with epidemiology. The book first published in 1976 and now more 25 editions is devoted towards the epidemiological survey to guide them through the theory and practical points of the subject and will serve this purpose.

The starting point rightly with the concepts of the population at risk. The first chapter also covers study and sample populations then successive chapters move on to quantifying disease in populations and comparison of disease rates. Misconceptions arise and here is dealt with prior to a series of chapters on epidemiological methods such as ecological, case-control, longitudinal and experimental studies. Chapter 5 on planning and conducting a survey should be required reading for anybody thinking of undertaking a survey, but why is an engagement with the methodology and would be statistical thinking, for all those in the Chain of Command on any Department responsible for the undertaking of epidemiological surveys within the Service. The final chapters cover screening, outbreaks of disease and clinical epidemiological reports the latter including how to present statistical epidemiological and medical evidence.

Considering the difficulties in trying to cover the basics of epidemiology in only 161 pages the authors will have proved the book and many complex concepts are covered remarkably well and in the most clearly. Within such a short volume there is much good advice and extensive notes and a glossary, but well chosen reading for specific topics can easily be found because the book is well organized and well indexed. Inevitably there are minor omissions and not all major topics are covered, for example the evidence based approach for clinicians. Some concepts such as randomised downwards an unexplained link (Chapter) statistical treatment in the context of. Analysing opportunity of ability to be found in a form of medical statistics and when comparing measures of disease rates there is no mention of the importance of confidence intervals (especially around standardised rates). Similarly and specificity of tests are dealt with under the section on Analysing validity but could easily have been considered further within the chapter on screening and in the final chapter the criteria for screening criteria and themselves is being summarised in a table with examples of specific such criteria. Nevertheless overall the pleasure through the minutes and hours in its approach to HSE about epidemiology in the subject.

A brief search on the net has shown that the book is on the recommended reading list for the AFCD and MFCM but it would not be surprising to find it recommended by other Colleges or Faculties. The list price of £11.95 for such a short volume seems a bit steep, particularly when the full text is available on the Web at <http://www.hse.gov.uk> but of course provides a conveniently packaged and easily accessible reference. It remains a most useful introductory text and a valuable tool for those wishing to refresh or update their knowledge of the basics of the subject.

Jeff Howard Long Cdr RN

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Service News

NEW ENTERS

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K M MACLEOD

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*(None of any rank in the of primary sales
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RN

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MR

P A ELIAS S MYSORRELL

DEPUTIES

M J HICKS

PROMOTIONS

DOCTORS

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C A PERKINS P A C MACINNES D L POTTER

To Surgeon Lieutenant
D S SALMON J G PENN-BADWELL
A S KINGS M J SELLITT

To Surgeon Lieutenant Commander
A M MELLYN

QUERNS

To Lieutenant Commander
A J SHORMAN C S HENDERSON A L BEARE
A E BACCHILL L B CHILVERS
L DOWLAND

QUANNOCK

To Lieutenant Commander
A R BLOOM D C POLLINGTON
R G MANNING R J MACLEOD
M P SMITH

To Lieutenant

K HUGHES D R L HAZARD

DEPUTIES

To Surgeon Lieutenant
R J SPURD

RN

DOCTORS

C W BAXTER W M KIMBLESTONE
C J CHURCHER-BROWN L A WALLIS
P D EDWARDS

RN

J P DUFF R NORMAN G W L DRANS

QUERNS

D S CLIFTON M A GARDINER

QUANNOCK

K M MACLEOD

MR

P WARDMAN R B REYNOLDS

COMMISSION TRANSFERS

DOCTORS

To MCC

CLING LT: NGA 280180
(for transfer 01 02084)

BRUNETT S A F FRANKLIN-MILLER A D
GRANGE C L GUYVER P M
KATTON J C KHAN M A MAPLES A T
MINER A J PROCTOR A B READ J A J M
SCOTT T E WILD G WILSON S C

From MCC to PTC

COATES P B KIDGEL M B

SURO LT COL: MAR 300410
(for transfer 01 02084)

To NRC

BARAKAT J D MILITROP A M
TORDON R O (Sup Cdr)

QUAINS

To MCC

L ENGLAND R J JAMES

To MCC

R C BROWN P L S BRYCE ROBERTSON
R F CHAMBERLAIN R W CHARLTON
L D CHESTER J P DEMPSEY ASHC
F J DILLON M S C FRANCE J G GARDNER
C R GILMAN C B KENNEDY
L R KENNEDY C W MCCONVILLE
R MORGANLAND J W MORTON
R S MORGAN P D O'NEILL M E O'NEILL
R P O'NEILL C B ROBERT P J RYLAND
L M TAYLOR J THOMPSON E THORPE
J J WATSON J C THORNTON

DENTISTS

To MCC

O B BARTON C Y WILDE

SURO LT COL: MAR 300410
(for transfer 01 02084)

To MCC

WINDFELD M B

WARDS AND EXAMINATIONS

DOCTORS AND TESTS

Sup Lt R N FLANDERS	
ASCP P (1) (normal)	Dec 83
Sup Lt Col P B SMITH	
ASCP	Nov 88
Sup Lt Col G J CONNOR	
ASCP	Nov 88
Sup Col A B BAKER	
MDA (normal)	Jan 88
Sup Col A B BAKER	
MDA	Jul 88
Sup Col A B BAKER	
ASCP	Jan 88
Sup Lt Col L GRANT	
ASCP	Dec 83
Sup Lt Col P J E BEAMS	
MDA (normal)	Dec 88
Sup Lt Col M J TARRANT	
MDA	Dec 88
Sup Lt Col R A T OAK	
Part 1 PTC	Dec 88
Sup Lt Col R M BATEMAN	
MDA (normal)	Dec 88
Sup Lt Col J M READ	
Primary PTC	Jan 88
Sup Lt Col P C C TAYLOR	
Primary PTC	Oct 87
Sup Lt Col P J TAYLOR	
ASCP	Feb 88
Sup Col M B STEWART	
ASCP	Feb 88

ONE

Surgeon Commander P F R VOLLEY
Col G E KENNEDY QUAINS

ASCP

L J P DEMPSEY QUAINS

GILBERT BLAIR MEDICAL

Surgeon Commander P C FISHER

APPOINTMENTS

ONE

Surgeon Commander P F R VOLLEY
Surgeon Commander T DONALD REILLY
Surgeon Captain G M HOWARD

Consultant Advisers to MEDICAL

Sup Col J O BRADLEY
Sup Lt Col G N LEVINE

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Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains.

Commanding Officer
 101st Airborne
 Ft. Campbell
 N. J. M. BUCHANAN

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Porty Officer Medical Assistant James joined EMS CORP-NALL in February 2003 and has served with distinction throughout his career on the ship. As a naturally capable Medical Branch member James is a persistent student for excellence. His outstanding performance has earned him numerous periods of security, including extended USS (Intelligence, Surveillance and Reconnaissance) operations, at the Indian Coast Guard profile Group's Galinda Station, versus a team Mission Command structure. Moreover, James Operated the Training (HART) syllabus training and successfully a short notice operation at the Port of Colombia.

Prof. Dr. combined professional knowledge and competence, of the highest order with great confidence, integrity, independence and objectivity, integrity, high degree of Medical Expertise. In particular, the training of applicants gave us the way in which she has continued to develop, expand and has understanding of the Associated Education procedure has been excellent. She has the ability to make a balance between a thoroughly living approach to her patients with a robust and constructive manner when appropriate. It is that has proved a high, not to say, the wholly genuine responses of frequent and fully informed under the time, spirit of 1997 when a Good Works of America in the, Staff has Cheri, the First Inspector and Great assistance can a all.

After, usually, his master for the authorized hotel. Sir Thomas often orders and in Gary Fox Collins or even had in MARR (MARR) where reported. PMAA, France, has also demonstrated that she presents a broad and really professional outlook, beyond the medical Spanish scene. This is the reason for abundant resources. The University qualified as a Step 1 Photographic. France has installed an entire aspect of his studies, and has submitted, respectively, with a few, with

where this — comparing part against whole — reflects our perspective and place within the world. The unshared capacity may, for which, you thank by a genuine kindness and sharp sense of humor his remark that her contribution to HSM's (1995: 504) is, too, being without measure!

The example shown by Pope John's Medical Assistant Winger is one that should be followed by all who wish to continue the happy traditions of the Royal Naval Medical Service. She is the worthy woman of the Salt Sticks Post-Office. Efficiency Medal for 1940 and at present great pleasure to become her friend.

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11. *Journal of the American Medical Association*, 273:1323-1324 (1995).

Abstract

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1. **THE UNIVERSITY OF CHICAGO**
 2. **DEPARTMENT OF POLITICAL SCIENCE**
 3. **CHICAGO, ILLINOIS 60637**

[illegible]

Persons that have witnessed the deaths of 7 Hargrove
[State Admiral Sir J Hargrove CB CBE], and 10
[Commander M Hargrove CBE] (1 to 10) (11 to 15) (16 to 20)
(21 to 25) (26 to 30) (31 to 35) (36 to 40) (41 to 45) (46 to 50) (51 to 55) (56 to 60) (61 to 65) (66 to 70) (71 to 75) (76 to 80) (81 to 85) (86 to 90) (91 to 95) (96 to 100) (101 to 105) (106 to 110) (111 to 115) (116 to 120) (121 to 125) (126 to 130) (131 to 135) (136 to 140) (141 to 145) (146 to 150) (151 to 155) (156 to 160) (161 to 165) (166 to 170) (171 to 175) (176 to 180) (181 to 185) (186 to 190) (191 to 195) (196 to 200) (201 to 205) (206 to 210) (211 to 215) (216 to 220) (221 to 225) (226 to 230) (231 to 235) (236 to 240) (241 to 245) (246 to 250) (251 to 255) (256 to 260) (261 to 265) (266 to 270) (271 to 275) (276 to 280) (281 to 285) (286 to 290) (291 to 295) (296 to 300) (301 to 305) (306 to 310) (311 to 315) (316 to 320) (321 to 325) (326 to 330) (331 to 335) (336 to 340) (341 to 345) (346 to 350) (351 to 355) (356 to 360) (361 to 365) (366 to 370) (371 to 375) (376 to 380) (381 to 385) (386 to 390) (391 to 395) (396 to 400) (401 to 405) (406 to 410) (411 to 415) (416 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